

August 2007

No. OC316
REVISED EDITION-D


TECHNICAL & SERVICE MANUAL

[Model name]

<Outdoor unit>

MXZ-8A140VA

[Service Ref.]

MXZ-8A140VA
MXZ-8A140VA₁
MXZ-8A140VA₂
MXZ-8A140VA₃

<Branch box>

PAC-AK50BC

PAC-AK30BC

(Indispensable optional parts
for MXZ-8A140VA)

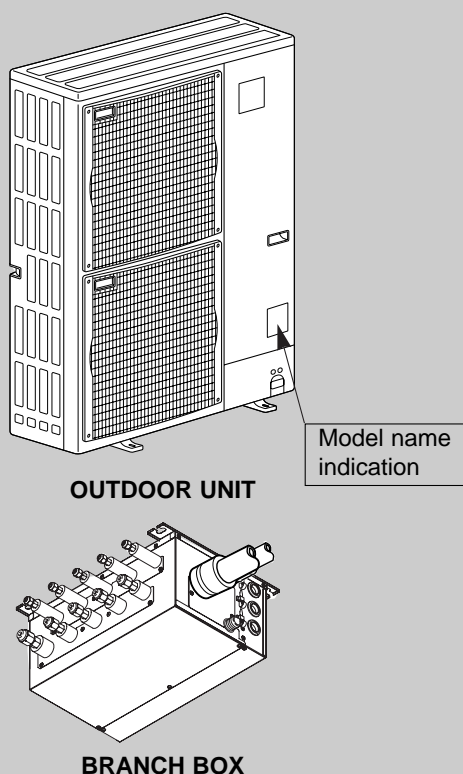
Revision:

- MXZ-8A140VA₃ is added in REVISED EDITION-D.
- Some descriptions have been modified.

- Please void OC316 REVISED EDITION-C.

NOTE:

- This service manual describes technical data of outdoor unit and branch box. As for indoor units, refer to its service manual.
- RoHS compliant products have <G> mark on the spec name plate.
- For servicing RoHS compliant products, refer to the RoHS PARTS LIST.



CONTENTS

1. TECHNICAL CHANGES	2
2. SAFETY PRECAUTION	3
3. OVERVIEW OF UNITS	6
4. SPECIFICATIONS	14
5. DATA	16
6. OUTLINES AND DIMENSIONS	31
7. WIRING DIAGRAM	34
8. NECESSARY CONDITIONS FOR SYSTEM CONSTRUCTION ...	38
9. TROUBLESHOOTING	40
10. ELECTRICAL WIRING	88
11. WIRING SPECIFICATIONS	89
12. SYSTEM CONTROL	90
13. REFRIGERANT PIPING TASK	92
14. DISASSEMBLY PROCEDURE	95
15. PARTS LIST	102
16. RoHS PARTS LIST	109
17. OPTIONAL PARTS	Back cover

MXZ-8A140VA₂ → MXZ-8A140VA₃

The parts below have been changed.

- THERMISTOR (DISCHARGE/TH4) (Connector change)
- CONTROLLER CIRCUIT BOARD(C.B)
- NOISE FILTER CIRCUIT BOARD(N.F.)
- ACTIVE FILTER MODULE(ACTM)
- RELAY(52C), RESISTOR(RS)(including N.F.)

MXZ-8A140VA₁ → MXZ-8A140VA₂

The parts below have been changed.

- FOUR-WAY VALVE AND COIL(21S4)
- CONTROLLER CIRCUIT BOARD(C.B.)
- FAN MOTOR(MF1, MF2)
- SOLENOID VALVE AND COIL(SV2)

MXZ-8A140VA → MXZ-8A140VA₁

The parts below have been changed.

- POWER CIRCUIT BOARD(P.B.)
- NOISE FILTER CIRCUIT BOARD(N.F.)
- THERMISTOR (OUTDOOR / TH7)
(Length change)

2-1. ALWAYS OBSERVE FOR SAFETY

Before obtaining access to terminal, all supply circuit must be disconnected.

2-2. CAUTIONS RELATED TO NEW REFRIGERANT

Caution for units utilizing refrigerant R410A

Use new refrigerant pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc. In addition, use pipes with specified thickness.

Contamination inside refrigerant piping can cause deterioration of refrigerant oil etc.

Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Use ester oil, ether oil or alkylbenzene oil (small amount) as the refrigerant oil applied to flares and flange connections.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R410A.

If other refrigerant (R22 etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil etc.

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Keep the tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

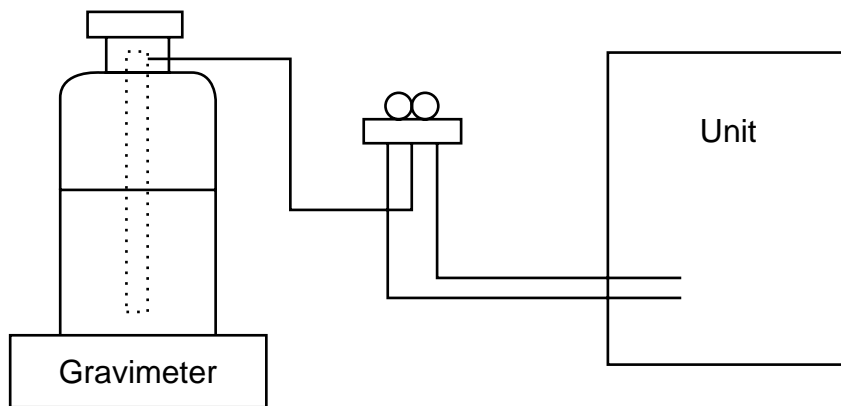
[1] Cautions for service

- (1) Perform service after recovering the refrigerant left in unit completely.
- (2) Do not release refrigerant in the air.
- (3) After completing service, charge the cycle with specified amount of refrigerant.
- (4) When performing service, install a filter drier simultaneously.
Be sure to use a filter drier for new refrigerant.

[2] Additional refrigerant charge

When charging directly from cylinder

- Check that cylinder for R410A on the market is syphon type.
- Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



[3] Service tools

- (1) Use the below service tools as exclusive tools for R410A refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	·Only for R410A
		·Use the existing fitting specifications. (UNF1/2)
		·Use high-tension side pressure of 5.3MPa·G or over.
②	Charge hose	·Only for R410A
		·Use pressure performance of 5.09MPa·G or over.
③	Electronic scale	—
④	Gas leak detector	·Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	·Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	·Only for R410A ·Top of cylinder (Pink)
		·Cylinder with syphon
⑧	Refrigerant recovery equipment	—

(2) Cautions for refrigerant piping work

New refrigerant R410A is adopted for replacement inverter series. Although the refrigerant piping work for R410A is same as for R22, exclusive tools are necessary so as not to mix with different kind of refrigerant. Furthermore as the working pressure of R410A is 1.6 time higher than that of R22, their sizes of flared sections and flare nuts are different.

① Thickness of pipes

Because the working pressure of R410A is higher compared to R22, be sure to use refrigerant piping with thickness shown below. (Never use pipes of 0.7mm or below.)

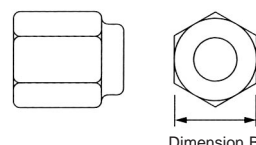
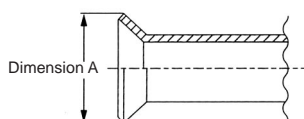
Diagram below: Piping diameter and thickness

Nominal dimensions(inch)	Outside diameter (mm)	Thickness (mm)	
		R410A	R22
1/4	6.35	0.8	0.8
3/8	9.52	0.8	0.8
1/2	12.70	0.8	0.8
5/8	15.88	1.0	1.0
3/4	19.05	—	1.0

② Dimensions of flare cutting and flare nut

The component molecules in HFC refrigerant are smaller compared to conventional refrigerants. In addition to that, R410A is a refrigerant, which has higher risk of leakage because of its working pressure higher than that of other refrigerants. Therefore, to enhance airtightness and intensity, flare cutting dimension of copper pipe for R410A have been specified separately from the dimensions for other refrigerants as shown below. The dimension B of flare nut for R410A also have partly been changed to increase intensity as shown below. Set copper pipe correctly referring to copper pipe flaring dimensions for R410A below. For 1/2" and 5/8", the dimension B changes.

Use torque wrench corresponding to each dimension.



Flare cutting dimensions (mm)

Nominal dimensions(inch)	Outside diameter	Dimension A (± 0.4)	
		R410A	R22
1/4	6.35	9.1	9.0
3/8	9.52	13.2	13.0
1/2	12.70	16.6	16.2
5/8	15.88	19.7	19.4
3/4	19.05	—	23.3

Flare nut dimensions (mm)

Nominal dimensions(inch)	Outside diameter	Dimension B	
		R410A	R22
1/4	6.35	17.0	17.0
3/8	9.52	22.0	22.0
1/2	12.70	26.0	24.0
5/8	15.88	29.0	27.0
3/4	19.05	—	36.0

③ Tools for R410A (The following table shows whether conventional tools can be used or not.)

Tools and materials	Use	R410A tools	Can R22 tools be used?	Can R407C tools be used?
Gauge manifold	Air purge, refrigerant charge	Tool exclusive for R410A	×	×
Charge hose	and operation check	Tool exclusive for R410A	×	×
Gas leak detector	Gas leak check	Tool for HFC refrigerant	×	○
Refrigerant recovery equipment	Refrigerant recovery	Tool exclusive for R410A	×	×
Refrigerant cylinder	Refrigerant charge	Tool exclusive for R410A	×	×
Applied oil	Apply to flared section	Ester oil and alkylbenzene oil (minimum amount)	×	Ester oil: ○ Alkylbenzene oil: minimum amount
Safety charger	Prevent compressor malfunction when charging refrigerant by spraying liquid refrigerant	Tool exclusive for R410A	×	×
Charge valve	Prevent gas from blowing out when detaching charge hose	Tool exclusive for R410A	×	×
Vacuum pump	Vacuum drying and air purge	Tools for other refrigerants can be used if equipped with adpoter for reverse flow check	△ (Usable if equipped with adpoter for reverse flow)	△ (Usable if equipped with adpoter for reverse flow)
Flare tool	Flaring work of piping	Tools for other refrigerants can be used by adjusting flaring dimension	△ (Usable by adjusting flaring dimension)	△ (Usable by adjusting flaring dimension)
Bender	Bend the pipes	Tools for other refrigerants can be used	○	○
Pipe cutter	Cut the pipes	Tools for other refrigerants can be used	○	○
Welder and nitrogen gas cylinder	Weld the pipes	Tools for other refrigerants can be used	○	○
Refrigerant charging scale	Refrigerant charge	Tools for other refrigerants can be used	○	○
Vacuum gauge or thermistor vacuum gauge and vacuum valve	Check the degree of vacuum. (Vacuum valve prevents back flow of oil and refrigerant to thermistor vacuum gauge)	Tools for other refrigerants can be used	○	○
Charging cylinder	Refrigerant charge	Tool exclusive for R410A	×	—

× : Prepare a new tool. (Use the new tool as the tool exclusive for R410A.)

△ : Tools for other refrigerants can be used under certain conditions.

○ : Tools for other refrigerants can be used.

3-1. CONSTRUCTION OF SYSTEM

Outdoor unit		MXZ-8A140VA/ MXZ-8A140VA ₁ / MXZ-8A140VA ₂ / MXZ-8A140VA ₃	
		Rated capacity (kW) (Cooling/Heating)	14.0/16.0
		5HP	
		R410A	
Indoor unit that can be connected	Capacity	Type 22 ~ Type 80 <div>CAUTION : The indoor unit which rated capability exceeds 8.0kW (80 type) can NOT be connected.</div>	
	Number of units	2 ~ 8 units	
	Total system wide capacity	31 ~ 132 % of outdoor unit capacity (4.4 kW ~ 18.5 kW)	
Branch box that can be connected	Number of units	1 ~ 2 units	



Connectable indoor unit lineup (Heat pump inverter type)									
Model type		Model name	Capacity class						
			2.2kW	2.5kW	3.5kW	5.0kW	6.0kW	7.1kW	8.0kW
Wall mounted	deluxe	MSZ-FA25/35, FD25/35		●	●				
	standard	MSZ-GA22/25/35/50/60/71/80, GB50, GC22/25/35	●	●	●	●	●	●	●
		MSXZ-DB25/35		●	●				
Ceiling concealed	Low static pressure	SEZ-KC25, KA35/50/60/71, KD25/35/50/60/71		●	●	●	●	●	
	Low static pressure	MEXZ-GA25/35/50/60		●	●	●	●		
	High static pressure	PEAD-RP50/60/71EA.UK				●	●	●	
	High static pressure	PEAD-RP60/71GA.UK					●	●	
	High static pressure	PEA-RP71EA						●	
4-way ceiling cassette	2 by 2 type	SLZ-KA25/35/50		●	●	●			
	standard	PLA-RP35/50/60/71BA(.UK)			●	●	●	●	
Floor standing		MFZ-KA25/35/50		●	●	●			

<NOTE> The lineup of a connectable indoor unit depends on a district/areas/country.



Branch box	PAC-AK50BC	PAC-AK30BC
Number of branches (Indoor unit that can be connected)	5 branches (MAX. 5 units)	3 branches (MAX. 3 units)

※ Max. 2 branch boxes can be connected to 1 outdoor unit.



2- branch pipe (joint) : Optional parts		
In case of using 1- branch box	No need	
In case of using 2- branch boxes	Model name	Connection method
	MSDD-50AR-E	flare
	MSDD-50BR-E	brazing
※ According to the connection method, you can choose the favorite one.		

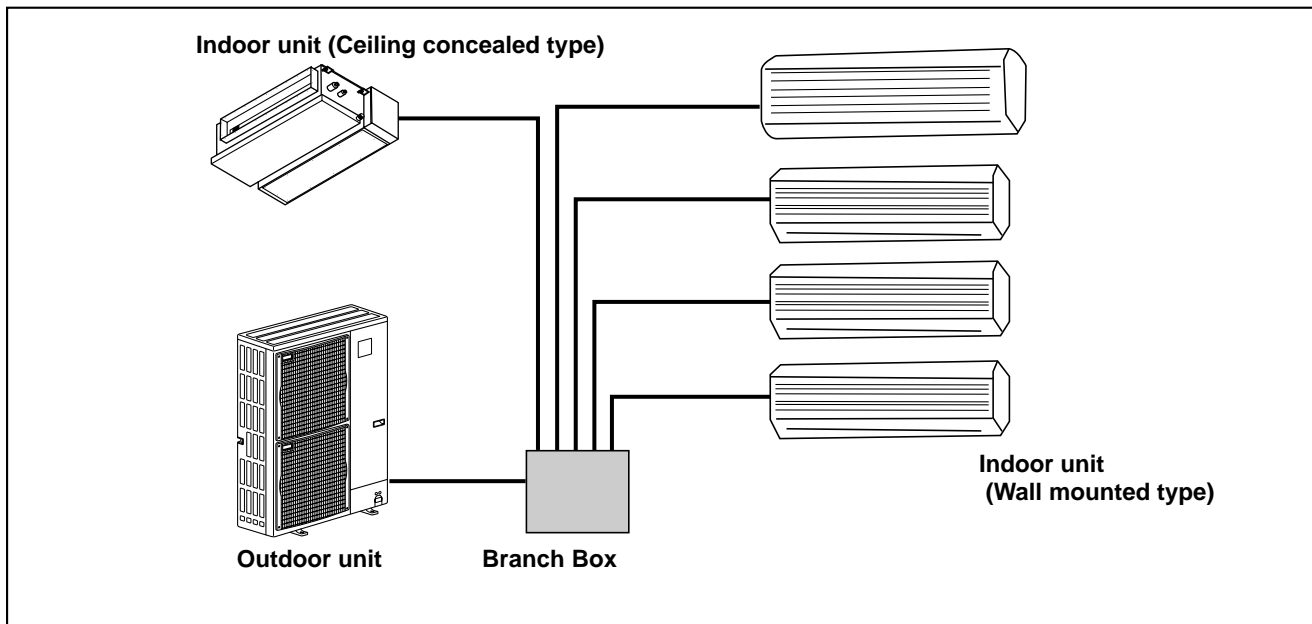


Option	Optional accessories of indoor units and outdoor units are available.
--------	---

3-2. SYSTEM OUTLINE

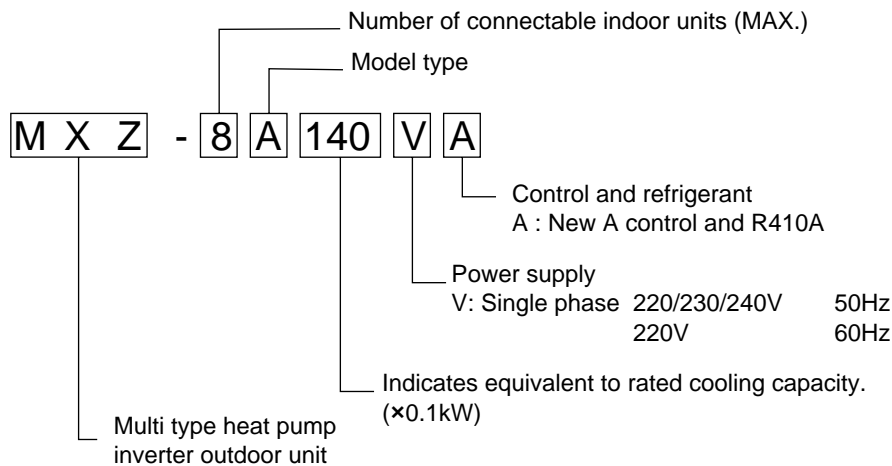
The additional connection of the Branch Box together with employment of the compact trunk-looking outdoor unit can successfully realize a long distance piping for big houses. Equipped with a microcomputer, the Branch Box can translate the transmission signal of indoor units to achieve the optimum control.

3-2-1. System example

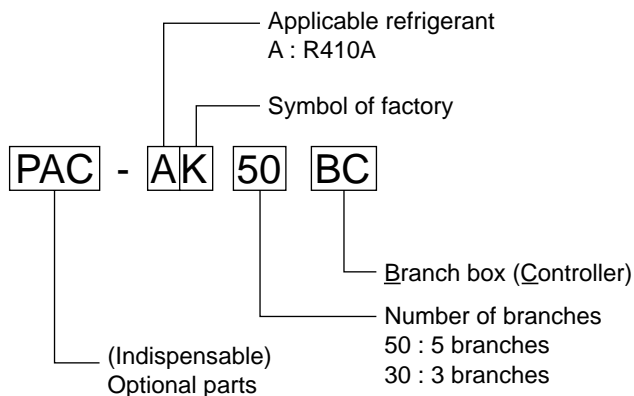


3-2-2. Method for identifying

■ Outdoor unit

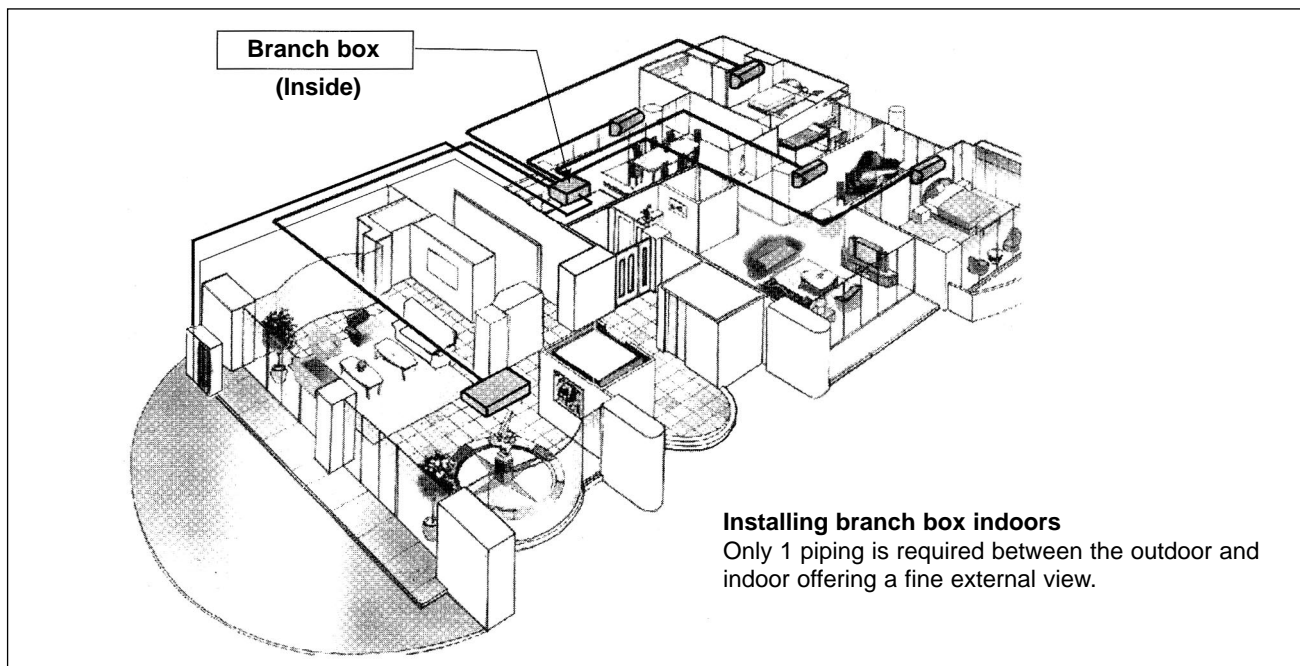


■ Branch box

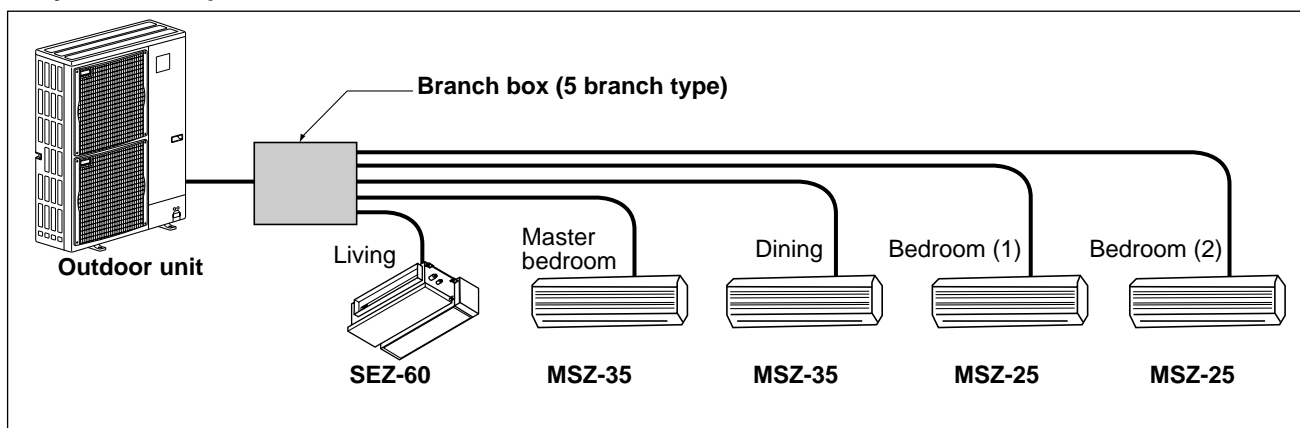


3-3. TYPICAL COMBINATION EXAMPLE

Branch box is located **INSIDE** of condominium



■ System example of 5 indoor units



■ Verification

The rated capacity should be determined by observing the table below. The unit's quantities are limited in 2 to 8 units. For the next step, make sure that the selected total rated capacity is in a range of 4.4 ~ 18.5kW.

The total indoor unit capacity should be within the outdoor units. (=14.0kW is preferred).

Combination of excessive indoor units and an outdoor unit may reduce the capacity of each indoor unit.

The rated indoor capacity is as the table below.

Example:

$$\begin{array}{rcl}
 \text{SEZ-60} & = & 6.0 \\
 & + & \\
 \text{MSZ-35} & = & 3.5 \\
 & + & \\
 \text{MSZ-35} & = & 3.5 \\
 & + & \\
 \text{MSZ-25} & = & 2.5 \\
 & + & \\
 \text{MSZ-25} & = & 2.5 \\
 \hline
 & & \text{Total rated capacity} \\
 & & 18.0 \leq 18.5\text{kW}
 \end{array}$$

Indoor unit type (capacity class)	22	25	35	50	60	71	80
Rated capacity (cooling) (kW)	2.2	2.5	3.5	5.0	6.0	7.1	8.0

3-4. INSTALLATION

3-4-1. Outdoor unit installation location

For best performance, select proper position.

- Avoid places where combustible gas may be generated or leak.
- Avoid direct sunlight or other sources of heat.
- Install sunshade to protect the outdoor unit if direct sunlight hits the unit.
- Install the outdoor unit with enough distance between neighbours as operation noise may disturb the neighbours.
- Avoid the position that the unit is covered by snow or snow blows directly against the air outlet. The snow block or blow will reduce the airflow of the outdoor unit.

In the areas of heavy snow, special countermeasures must be taken at installation to protect the outdoor unit from malfunction caused by snow.

- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Drain water must be drained freely during operation. Check for draining.

3-4-2. Ventilation and service space

(1) Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows 3 examples of precautions against strong winds.

- Face the air outlet towards the nearest available wall about 50 cm away from the wall. (Fig. 2-1)
- Install an optional air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 2-2)
 - Ⓐ Air guide
- Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 2-3)
 - Ⓑ Wind direction

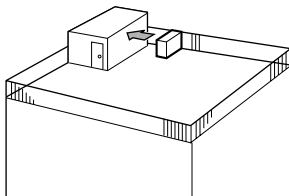


Fig.2-1

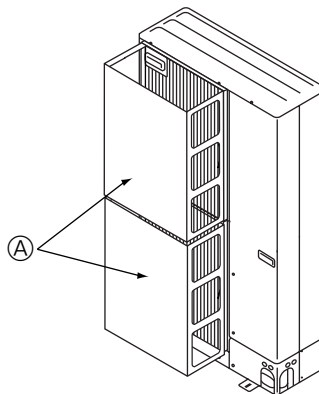


Fig.2-2

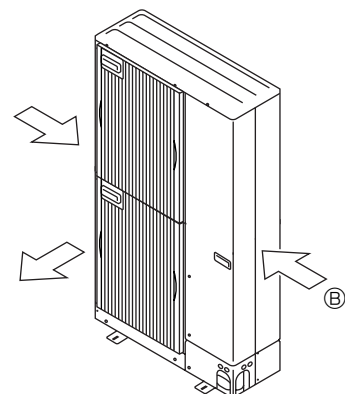


Fig.2-3

(2) When installing a single outdoor unit

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.

Refer to the figures for each case.

- Obstacles at rear only (Fig. 2-4)
- Obstacles at rear and above only (Fig. 2-5)
 - Do not install the optional air outlet guides for upward airflow.
- Obstacles at rear and sides only (Fig. 2-6)
- Obstacles at front only (Fig. 2-7)
 - * When using an optional air outlet guide, the clearance is 500 mm or more.
- Obstacles at front and rear only (Fig. 2-8)
 - * When using an optional air outlet guide, the clearance is 500 mm or more.
- Obstacles at rear, sides, and above only (Fig. 2-9)
 - Do not install the optional air outlet guides for upward airflow.

unit : mm

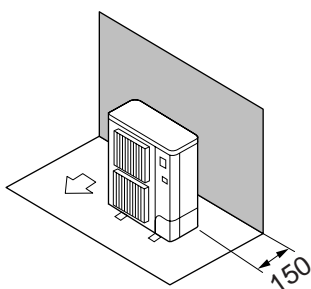


Fig.2-4

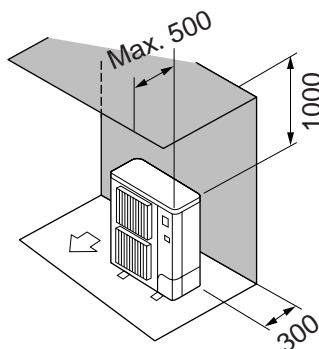


Fig.2-5

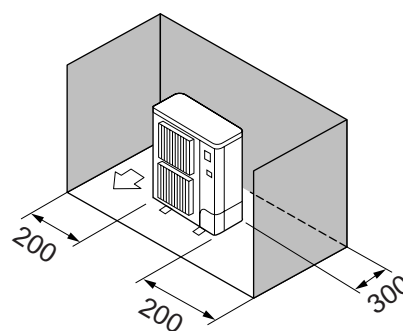


Fig.2-6

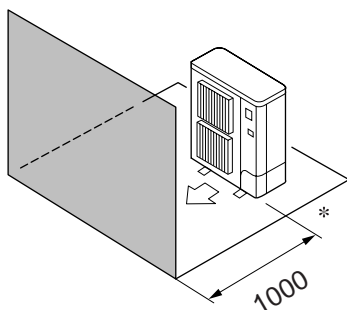


Fig.2-7

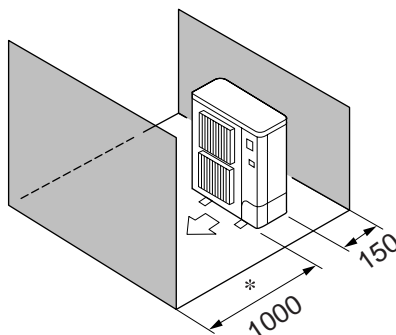


Fig.2-8

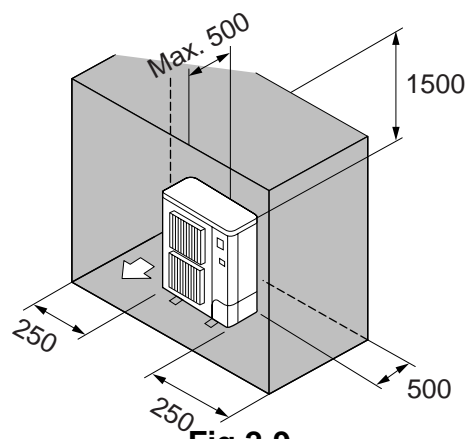


Fig.2-9

(3) When installing multiple outdoor units

Leave 10 mm space or more between the units.

- Obstacles at rear only (Fig. 2-10)
- Obstacles at rear and above only (Fig. 2-11)
 - No more than 3 units must be installed side by side. In addition, leave space as shown.
 - Do not install the optional air outlet guides for upward airflow.
- Obstacles at front only (Fig. 2-12)
 - * When using an optional air outlet guide, the clearance is 1000 mm or more.
- Obstacles at front and rear only (Fig. 2-13)
 - * When using an optional air outlet guide, the clearance is 500 mm or more.
- Single parallel unit arrangement (Fig. 2-14)
 - * When using an optional air outlet guide installed for upward airflow, the clearance is 1000 mm or more.
- Multiple parallel unit arrangement (Fig. 2-15)
 - * When using an optional air outlet guide installed for upward airflow, the clearance is 1500 mm or more.
- Stacked unit arrangement (Fig. 2-16)
 - The units can be stacked up to 2 units high.
 - No more than 2 stacked units must be installed side by side. In addition, leave space as shown.

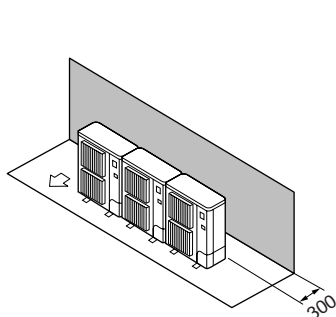


Fig.2-10

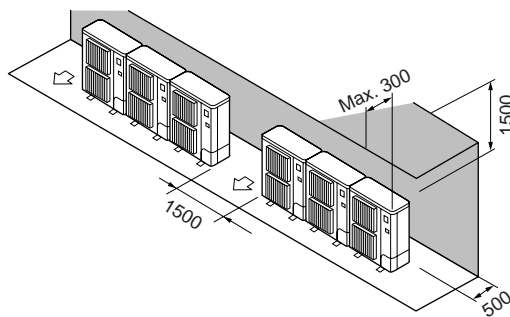


Fig.2-11

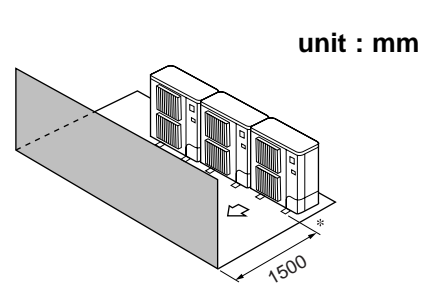


Fig.2-12

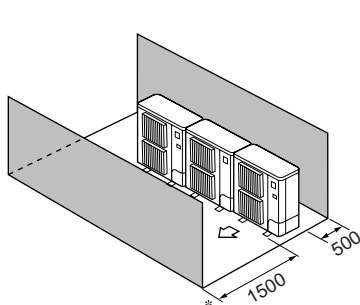


Fig.2-13

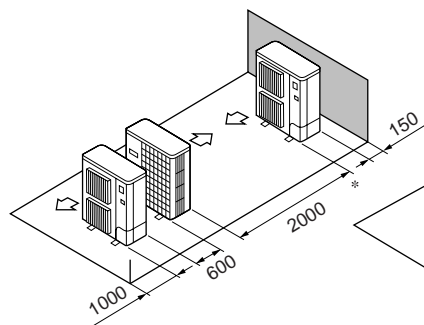


Fig.2-14

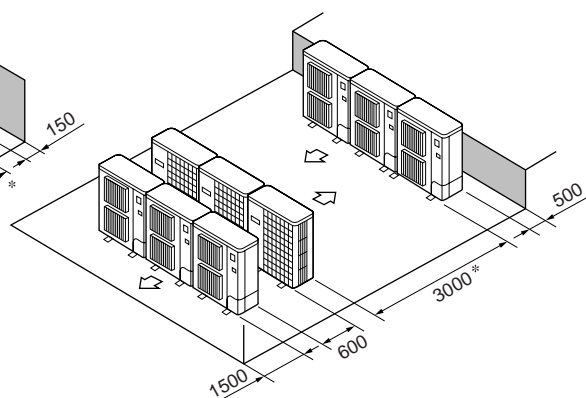


Fig.2-15

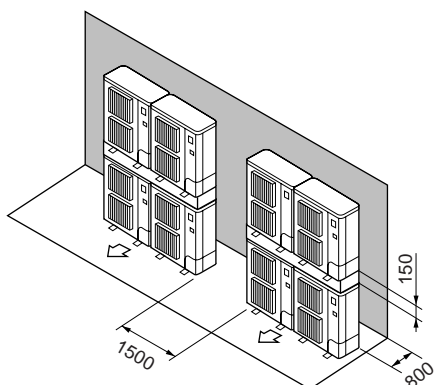


Fig.2-16

unit : mm

3-4-3. Space required for Installation and servicing for Branch box.

(1) Front View (Fig. 3-1)

- Ⓐ Branch box
- Ⓑ On the side of piping

(2) Side View (Fig. 3-2, Fig. 3-3)

- Ⓒ For indoor installations
- Ⓓ Ceiling board
- Ⓔ Maintenance hole
- Ⓕ PCB side

※1: A minimum 350 mm is required for 90° bends in refrigerant piping.

※2: Ⓐ is "Min. 200 mm".

(Premise: The slope of drain piping is securable 1/100 or more. Required 200 mm or more, when not securable.)

In the case of less than 200 mm (for example Ⓐ is 100 mm), the exchange work of Branch box from a maintenance hole becomes difficult (Only exchange work of a PCB, linear expansion valve coils, sensors and drain pan is possible).

※3: Ⓑ is "□600".

In the case of "□450", prepare a maintenance hole at a PCB side as it is shown in Fig. 3-3, and

"Min. 300 mm" is needed as distance Ⓐ.

In the case of less than 300 mm (for example Ⓐ is 100 mm), the exchange work of Branch box, linear expansion valve coils, sensors, and drain pan from a maintenance hole becomes difficult. Only exchange work of a PCB is possible.

(3) Top View (Fig. 3-4)

- Ⓖ Refrigerant piping
- Ⓖ When facing in the opposite direction to the refrigerant piping.

NOTE1: The branch box is only for indoor use.

NOTE2: Please attach the special optional cover (PAC-AK350CVR-E) to install branch box in the outdoors.

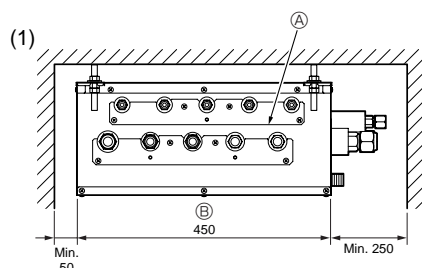


Fig.3-1

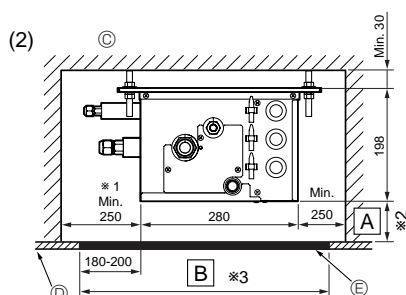


Fig.3-2

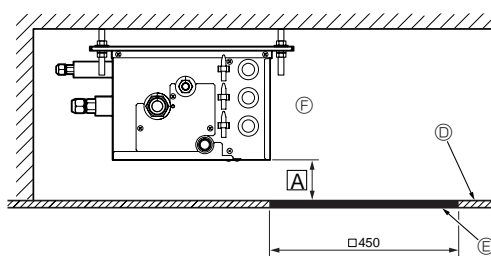


Fig.3-3

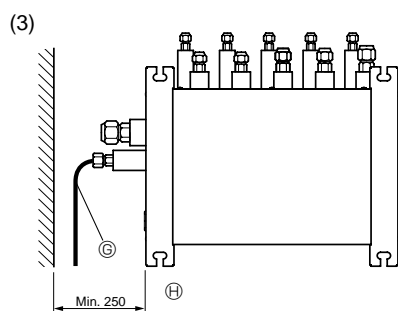


Fig.3-4

unit : mm

3-5. SIMPLIFIED PIPING SYSTEM

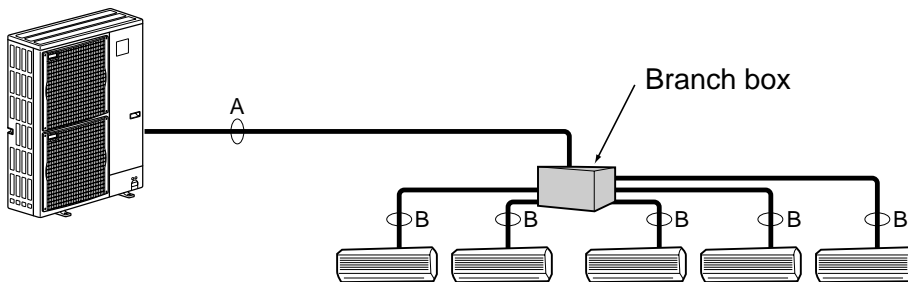
Piping connection size

		A	B
Liquid	(mm)	φ9.52	The piping connection size differs according to the type and capacity of indoor units. Match the piping connection size of branch box with indoor unit. If the piping connection size of branch box does not match the piping connection size of indoor unit, use optional different-diameter (deformed) joints to the branch box side. (Connect deformed joint directly to the branch box side.)
Gas	(mm)	φ15.88	

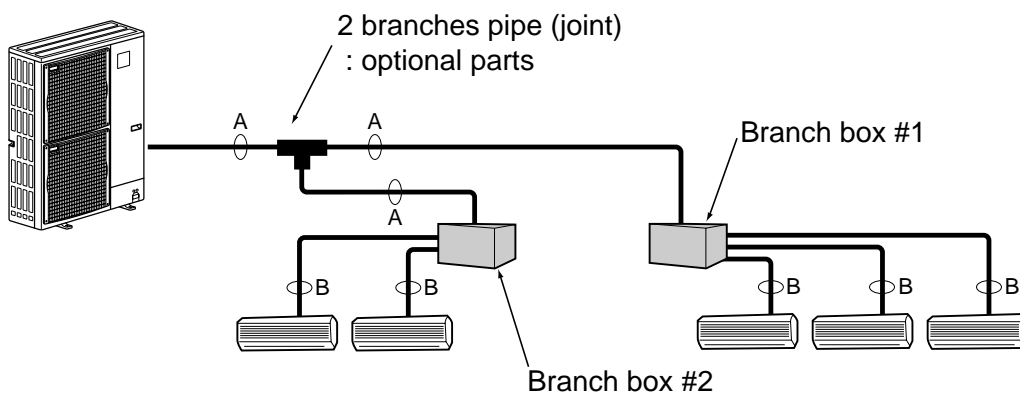
Flare connection employed. (No brazing!)

■ In case of using 1-branch box

Flare connection employed (No. brazing)



■ In case of using 2-branch boxes



■ Installation procedure (2 branch pipe (joint))

Refer to the installation manuals of MSDD-50AR-E and MSDD-50BR-E.

- Outdoor unit : MXZ-8A140VA MXZ-8A140VA₁
MXZ-8A140VA₂ MXZ-8A140VA₃

Conversion formula:	kcal/h = kW × 860
	Btu/h = kW × 3412
	CFM = m ³ /min × 35.31

Service Ref.				MXZ-8A140VA/ MXZ-8A140VA ₁ / MXZ-8A140VA ₂ / MXZ-8A140VA ₃	
Standard performance	Cooling	Rated Cooling capacity	kW	14.0	
		Rated power consumption ※1	kW	3.79	
		Operating current ※1	A	17.30/16.55/15.86, 17.30	
		Operating power factor ※1	%	99.6	
		Starting current (Outdoor unit)	A	14	
	Heating	Rated Heating capacity	kW	16.0	
		Rated power consumption ※1	kW	3.90	
		Operating current ※1	A	17.82/17.05/16.33, 17.82	
		Operating power factor ※1	%	99.5	
		Starting current (Outdoor unit)	A	14	
OUTDOOR UNIT	Breaker			Please refer to "10.ELECTRICAL WIRING".	
	Max. current (Outdoor unit only)			29.5	
	Power supply (phase, cycle, voltage)			Single, 50Hz, 220/230/240V, Single, 60Hz, 220V	
	External finish			Munsell 3Y 7.8/1.1	
	Refrigerant control			Linear Expansion Valve (In branch box)	
	Compressor			Hermetic	
		Model		ANB33FDCMT	
		Motor output	kW	2.9	
		Starter type		Line start	
		Protection devices		HP switch, LP switch, Discharge thermo	
	Crankcase heater			—	
	Heat exchanger			Plate fin coil	
	Fan	Fan (drive) × No.		Propeller fan × 2	
		Fan motor output	kW	0.060 +0.060	
		Airflow	m ³ /min (CFM)	100 (3,530)	
	Defrost method			Reverse cycle	
	Noise level	Cooling	dB	50	
		Heating	dB	52	
	Dimensions	W	mm (in.)	950 (37-3/8)	
		D	mm (in.)	330+30 (13+1-3/16)	
		H	mm (in.)	1,350 (53-1/8)	
	Weight			128 (282)	
	Refrigerant			R410A	
REFRIGERANT PIPING	Pipe size O.D.	Liquid	mm	φ9.52	
			mm	φ15.88	
		Gas	mm	φ15.88	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	

※1 In case of connecting 3 indoor units (6.0kW class), electrical data is only for outdoor unit.

Conversion formula

φ6.35mm	φ9.52mm	φ12.7mm	φ15.88mm	φ19.05mm
1/4 inch	3/8 inch	1/2 inch	5/8 inch	3/4 inch

Notes 1. Rating Conditions (ISO T1)

Cooling : Indoor : D.B. 27°C (80°F), W.B. 19°C (66°F) Outdoor : D.B. 35°C (95°F), W.B. 24°C (75°F)

Heating : Indoor : D.B. 20°C (68°F) Outdoor : D.B. 7°C (45°F), W.B. 6°C (43°F)

Refrigerant piping length (one way) : Main Piping (From outdoor unit to branch box) : 5m

Branch Piping (From branch box to each indoor units) : each 3m

2. Guaranteed operating range

		Indoor		Outdoor
		P-series	M-series, S-series	
Cooling	Upper limit	D.B. 35°C, W.B. 22.5°C	D.B. 32°C, W.B. 23°C	D.B. 46°C
	Lower limit	D.B. 19°C, W.B. 15°C	D.B. 21°C, W.B. 15°C	D.B. -5°C
Heating	Upper limit	D.B. 28°C	D.B. 27°C	D.B. 21°C, W.B. 15°C
	Lower limit	D.B. 17°C	D.B. 20°C	D.B. -15°C, W.B. -15°C

3. Guaranteed voltage

198~264V, 50Hz 198~242V, 60Hz

4. Above data are based on the indicated voltage.

Single, 50Hz, 220/230/240V, Single, 60Hz, 220V

5. Refer to the service manual of indoor unit for the indoor unit's specifications.

• **Branch box : PAC-AK50BC PAC-AK30BC**

Model name				PAC-AK50BC		PAC-AK30BC	
Connectable number of indoor units				MAX. 5		MAX. 3	
Power supply (from outdoor unit)				Single phase, 220/230/240V, 50Hz, Single phase, 220V, 60Hz			
Input			kW	0.003			
Running current			A	0.05			
External finish				Galvanized sheets			
Drain hose size (on site)			mm	O.D.20 (VP-16)			
Dimensions	Width		mm	450			
	Depth		mm	280			
	Height		mm	198			
Weight			kg	9.3		8.1	
Piping connection (Flare)	Branch (indoor side) *	Liquid	mm	φ6.35 × 5 {A,B,C,D,E}		φ6.35 × 3 {A,B,C}	
		Gas	mm	φ9.52 × 4 {A,B,C,D}, φ12.7 × 1{E}		φ9.52 × 3 {A,B,C}	
	Main (outdoor side)	Liquid	mm	φ9.52			
		Gas	mm	φ15.88			
Wiring	To indoor unit			Each 3-wire, plus earth wire			
	To outdoor unit			3-wire, plus earth wire			

* The piping connection size differs according to the type and capacity of indoor units. Match the piping connection size for indoor and branch box. If the piping connection size of branch box does not match the piping connection size of indoor units, use optional different-diameter (deformed) joints to the branch box side. (Connect deformed joint directly to the branch box side.)

5-1. CAPACITY AND CHARACTERISTICS

Note:

- Cooling capacity is based on D.B. 27°C / W.B. 19.0°C (indoor temperature), D.B. 35°C (outdoor temperature).
 - Heating capacity is based on D.B. 20°C (indoor temperature), D.B. 7°C / W.B. 6°C (outdoor temperature).
- The rated capacities below show the rise in the indoor unit connection capacity when operating frequency is constant. Values for changes in capacity are fixed after accounting for variations in operating frequency and should be used as reference values.
- **Please refer not to the table below but to "10. ELECTRICAL WIRING" for the breaker selection.**

(1) Cooling mode

<Cooling>

Number of operated indoor unit			Capacity of each unit (W)		Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
Unit A	Unit B	Unit A	Unit B	230V			240V	220V	
1	22	—	2200	—	2200	1050	4.6	4.4	4.8
	25	—	2500	—	2500	1140	5.0	4.8	5.2
	35	—	3500	—	3500	1410	6.2	5.9	6.5
	50	—	5000	—	5000	1700	7.5	7.2	7.8
	60	—	6000	—	6000	2000	8.8	8.4	9.2
	71	—	7100	—	7100	2310	10.1	9.7	10.6
2	22	22	2200	2200	4400	1590	7.0	6.7	7.3
	22	25	2200	2500	4700	1650	7.2	6.9	7.6
	22	35	2200	3500	5700	1910	8.4	8.0	8.8
	22	50	2200	5000	7200	2340	10.3	9.8	10.7
	22	60	2200	6000	8200	2620	11.5	11.0	12.0
	22	71	2200	7100	9300	2910	12.8	12.2	13.4
	25	25	2500	2500	5000	1700	7.5	7.2	7.8
	25	35	2500	3500	6000	2000	8.8	8.4	9.2
	25	50	2500	5000	7500	2430	10.7	10.2	11.2
	25	60	2500	6000	8500	2700	11.9	11.4	12.4
	25	71	2500	7100	9600	2990	13.1	12.6	13.7
	35	35	3500	3500	7000	2290	10.1	9.6	10.5
	35	50	3500	5000	8500	2700	11.9	11.4	12.4
	35	60	3500	6000	9500	2960	13.0	12.5	13.6
	35	71	3500	7100	10600	3370	14.8	14.2	15.5
	50	50	5000	5000	10000	3090	13.6	13.0	14.2
	50	60	5000	6000	11000	3560	15.6	15.0	16.3
	50	71	5000	7100	12100	4140	18.2	17.4	19.0
	60	60	6000	6000	12000	4080	17.9	17.2	18.7
	60	71	6000	7100	13100	4720	20.7	19.9	21.7
	71	71	7000	7000	14000	5220	22.9	22.0	24.0

<Cooling>

Number of operated indoor unit				Capacity of each unit (W)			Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
Unit A	Unit B	Unit C	Unit A	Unit B	Unit C	230V			240V	220V	
3	22	22	22	2200	2200	2200	6600	2170	9.5	9.1	10.0
	22	22	25	2200	2200	2500	6900	2260	9.9	9.5	10.4
	22	22	35	2200	2200	3500	7900	2540	11.2	10.7	11.7
	22	22	50	2200	2200	5000	9400	2940	12.9	12.4	13.5
	22	22	60	2200	2200	6000	10400	3270	14.4	13.8	15.0
	22	22	71	2200	2200	7100	11500	3810	16.7	16.0	17.5
	22	25	25	2200	2500	2500	7200	2340	10.3	9.8	10.7
	22	25	35	2200	2500	3500	8200	2620	11.5	11.0	12.0
	22	25	50	2200	2500	5000	9700	3010	13.2	12.7	13.8
	22	25	60	2200	2500	6000	10700	3410	15.0	14.4	15.7
	22	25	71	2200	2500	7100	11800	3970	17.4	16.7	18.2
	22	35	35	2200	3500	3500	9200	2880	12.6	12.1	13.2
	22	35	50	2200	3500	5000	10700	3410	15.0	14.4	15.7
	22	35	60	2200	3500	6000	11700	3920	17.2	16.5	18.0
	22	35	71	2200	3500	7100	12800	4540	19.9	19.1	20.8
	22	50	50	2200	5000	5000	12200	4190	18.4	17.6	19.2
	22	50	60	2200	5000	6000	13200	4780	21.0	20.1	21.9
	22	50	71	2150	4900	6950	14000	5220	22.9	22.0	24.0
	22	60	60	2170	5920	5920	14000	5220	22.9	22.0	24.0
	22	60	71	2010	5490	6500	14000	5040	22.1	21.2	23.1
	22	71	71	1880	6060	6060	14000	4450	19.5	18.7	20.4
	25	25	25	2500	2500	2500	7500	2430	10.7	10.2	11.2
	25	25	35	2500	2500	3500	8500	2700	11.9	11.4	12.4
	25	25	50	2500	2500	5000	10000	3090	13.6	13.0	14.2
	25	25	60	2500	2500	6000	11000	3560	15.6	15.0	16.3
	25	25	71	2500	2500	7100	12100	4140	18.2	17.4	19.0
	25	35	35	2500	3500	3500	9500	2960	13.0	12.5	13.6
	25	35	50	2500	3500	5000	11000	3560	15.6	15.0	16.3
	25	35	60	2500	3500	6000	12000	4080	17.9	17.2	18.7
	25	35	71	2500	3500	7100	13100	4720	20.7	19.9	21.7
	25	50	50	2500	5000	5000	12500	4360	19.1	18.4	20.0
	25	50	60	2500	5000	6000	13500	4970	21.8	20.9	22.8
	25	50	71	2400	4790	6810	14000	5220	22.9	22.0	24.0
	25	60	60	2410	5790	5790	14000	5220	22.9	22.0	24.0
	25	60	71	2240	5380	6370	14000	4870	21.4	20.5	22.4
	25	71	71	2100	5950	5950	14000	4310	18.9	18.1	19.8
	35	35	35	3500	3500	3500	10500	3320	14.6	14.0	15.2
	35	35	50	3500	3500	5000	12000	4080	17.9	17.2	18.7
	35	35	60	3500	3500	6000	13000	4660	20.5	19.6	21.4
	35	35	71	3480	3480	7050	14000	5220	22.9	22.0	24.0
	35	50	50	3500	5000	5000	13500	4970	21.8	20.9	22.8
	35	50	60	3380	4830	5790	14000	5220	22.9	22.0	24.0
	35	50	71	3140	4490	6370	14000	4870	21.4	20.5	22.4
	35	60	60	3160	5420	5420	14000	4920	21.6	20.7	22.6
	35	60	71	2950	5060	5990	14000	4350	19.1	18.3	20.0
	35	71	71	2770	5620	5620	14000	3900	17.1	16.4	17.9
	50	50	50	4670	4670	4670	14000	5240	23.0	22.1	24.1
	50	50	60	4380	4380	5250	14000	4650	20.4	19.6	21.3
	50	50	71	4090	4090	5810	14000	4140	18.2	17.4	19.0
	50	60	60	4120	4940	4940	14000	4180	18.4	17.6	19.2
	50	60	71	3870	4640	5490	14000	3760	16.5	15.8	17.3
	60	60	60	4670	4670	4670	14000	3790	16.6	15.9	17.3

<Cooling>

Number of operated indoor unit					Capacity of each unit (W)				Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
Unit A	Unit B	Unit C	Unit D	Unit A	Unit B	Unit C	Unit D	230V			240V	220V	
4	22	22	22	22	2200	2200	2200	2200	8800	2780	12.2	11.7	12.8
	22	22	22	25	2200	2200	2200	2500	9100	2860	12.6	12.0	13.1
	22	22	22	35	2200	2200	2200	3500	10100	3130	13.7	13.2	14.4
	22	22	22	50	2200	2200	2200	5000	11600	3870	17.0	16.3	17.8
	22	22	22	60	2200	2200	2200	6000	12600	4420	19.4	18.6	20.3
	22	22	22	71	2200	2200	2200	7100	13700	5100	22.4	21.5	23.4
	22	22	25	25	2200	2200	2500	2500	9400	2940	12.9	12.4	13.5
	22	22	25	35	2200	2200	2500	3500	10400	3270	14.4	13.8	15.0
	22	22	25	50	2200	2200	2500	5000	11900	4030	17.7	17.0	18.5
	22	22	25	60	2200	2200	2500	6000	12900	4600	20.2	19.4	21.1
	22	22	25	71	2200	2200	2500	7100	14000	5220	22.9	22.0	24.0
	22	22	35	35	2200	2200	3500	3500	11400	3760	16.5	15.8	17.3
	22	22	35	50	2200	2200	3500	5000	12900	4600	20.2	19.4	21.1
	22	22	35	60	2200	2200	3500	6000	13900	5230	23.0	22.0	24.0
	22	22	35	71	2050	2050	3270	6630	14000	5240	23.0	22.1	24.1
	22	22	50	50	2140	2140	4860	4860	14000	5220	22.9	22.0	24.0
	22	22	50	60	2000	2000	4550	5450	14000	4980	21.9	21.0	22.9
	22	22	50	71	1870	1870	4240	6020	14000	4400	19.3	18.5	20.2
	22	22	60	60	1880	1880	5120	5120	14000	4450	19.5	18.7	20.4
	22	22	60	71	1760	1760	4800	5680	14000	3980	17.5	16.8	18.3
	22	25	25	25	2200	2500	2500	2500	9700	3010	13.2	12.7	13.8
	22	25	25	35	2200	2500	2500	3500	10700	3410	15.0	14.4	15.7
	22	25	25	50	2200	2500	2500	5000	12200	4190	18.4	17.6	19.2
	22	25	25	60	2200	2500	2500	6000	13200	4780	21.0	20.1	21.9
	22	25	25	71	2150	2450	2450	6950	14000	5220	22.9	22.0	24.0
	22	25	35	35	2200	2500	3500	3500	11700	3920	17.2	16.5	18.0
	22	25	35	50	2200	2500	3500	5000	13200	4780	21.0	20.1	21.9
	22	25	35	60	2170	2460	3450	5920	14000	5220	22.9	22.0	24.0
	22	25	35	71	2010	2290	3200	6500	14000	5040	22.1	21.2	23.1
	22	25	50	50	2100	2380	4760	4760	14000	5220	22.9	22.0	24.0
	22	25	50	60	1960	2230	4460	5350	14000	4810	21.1	20.2	22.1
	22	25	50	71	1830	2080	4170	5920	14000	4260	18.7	17.9	19.6
	22	25	60	60	1840	2100	5030	5030	14000	4310	18.9	18.1	19.8
	22	25	60	71	1730	1970	4720	5580	14000	3860	17.0	16.2	17.7
	22	35	35	35	2200	3500	3500	3500	12700	4480	19.7	18.9	20.6
	22	35	35	50	2170	3450	3450	4930	14000	5220	22.9	22.0	24.0
	22	35	35	60	2030	3220	3220	5530	14000	5110	22.4	21.5	23.5
	22	35	35	71	1890	3010	3010	6090	14000	4500	19.8	18.9	20.7
	22	35	50	50	1960	3120	4460	4460	14000	4810	21.1	20.2	22.1
	22	35	50	60	1840	2930	4190	5030	14000	4310	18.9	18.1	19.8
	22	35	50	71	1730	2750	3930	5580	14000	3860	17.0	16.2	17.7
	22	35	60	60	1730	2770	4750	4750	14000	3900	17.1	16.4	17.9
	22	50	50	50	1790	4070	4070	4070	14000	4090	18.0	17.2	18.8
	22	50	50	60	1690	3850	3850	4610	14000	3730	16.4	15.7	17.1
	25	25	25	25	2500	2500	2500	2500	10000	3090	13.6	13.0	14.2
	25	25	25	35	2500	2500	2500	3500	11000	3560	15.6	15.0	16.3
	25	25	25	50	2500	2500	2500	5000	12500	4360	19.1	18.4	20.0
	25	25	25	60	2500	2500	2500	6000	13500	4970	21.8	20.9	22.8
	25	25	25	71	2400	2400	2400	6800	14000	5220	22.9	22.0	24.0
	25	25	35	35	2500	2500	3500	3500	12000	4080	17.9	17.2	18.7
25	25	35	50	2500	2500	3500	5000	13500	4970	21.8	20.9	22.8	
25	25	35	60	2410	2410	3380	5790	14000	5220	22.9	22.0	24.0	
25	25	35	71	2240	2240	3140	6370	14000	4870	21.4	20.5	22.4	
25	25	50	50	2330	2330	4670	4670	14000	5240	23.0	22.1	24.1	
25	25	50	60	2190	2190	4380	5240	14000	4650	20.4	19.6	21.3	
25	25	50	71	2050	2050	4090	5810	14000	4140	18.2	17.4	19.0	
25	25	60	60	2060	2060	4940	4940	14000	4180	18.4	17.6	19.2	
25	25	60	71	1930	1930	4640	5490	14000	3760	16.5	15.8	17.3	
25	35	35	35	2500	3500	3500	3500	13000	4660	20.5	19.6	21.4	
25	35	35	50	2410	3380	3380	4830	14000	5220	22.9	22.0	24.0	
25	35	35	60	2260	3160	3160	5420	14000	4920	21.6	20.7	22.6	
25	35	35	71	2110	2950	2950	5990	14000	4350	19.1	18.3	20.0	
25	35	50	50	2180	3060	4380	4380	14000	4650	20.4	19.6	21.3	
25	35	50	60	2060	2880	4120	4940	14000	4180	18.4	17.6	19.2	
25	35	50	71	1930	2710	3870	5490	14000	3760	16.5	15.8	17.3	
25	35	60	60	1940	2720	4670	4670	14000	3790	16.6	16.0	17.4	
25	50	50	50	2000	4000	4000	4000	14000	3980	17.5	16.8	18.3	
25	50	50	60	1890	3780	3780	4540	14000	3630	15.9	15.3	16.7	
35	35	35	35	3500	3500	3500	3500	14000	5220	22.9	22.0	24.0	
35	35	35	50	3160	3160	3160	4520	14000	4920	21.6	20.7	22.6	
35	35	35	60	2970	2970	2970	5090	14000	4400	19.3	18.5	20.2	
35	35	35	71	2780	2780	2780	5650	14000	3940	17.3	16.6	18.1	
35	35	50	50	2880	2880	4120	4120	14000	4180	18.4	17.6	19.2	
35	35	50	60	2720	2720	3890	4670	14000	3790	16.6	16.0	17.4	
35	50	50	50	2650	3780	3780	3780	14000	3630	15.9	15.3	16.7	

<Cooling>

Number of operated indoor unit					Capacity of each unit (W)					Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E			230V	240V	220V
22	22	22	22	22	2200	2200	2200	2200	2200	11000	3450	15.2	14.5	15.8
22	22	22	22	25	2200	2200	2200	2200	2500	11300	3610	15.9	15.2	16.6
22	22	22	22	35	2200	2200	2200	2200	3500	12300	4190	18.4	17.6	19.2
22	22	22	22	50	2200	2200	2200	2200	5000	13800	5200	22.8	21.9	23.9
22	22	22	22	60	2080	2080	2080	2080	5680	14000	5220	22.9	22.0	24.0
22	22	22	22	71	1940	1940	1940	1940	6240	14000	4700	20.6	19.8	21.6
22	22	22	25	25	2200	2200	2200	2500	2500	11600	3780	16.6	15.9	17.4
22	22	22	25	35	2200	2200	2200	2500	3500	12600	4370	19.2	18.4	20.1
22	22	22	25	50	2180	2180	2180	2480	4960	14000	5220	22.9	22.0	24.0
22	22	22	25	60	2040	2040	2040	2320	5560	14000	5170	22.7	21.8	23.7
22	22	22	25	71	1900	1900	1900	2160	6140	14000	4550	20.0	19.1	20.9
22	22	22	35	35	2200	2200	2200	3500	3500	13600	5060	22.2	21.3	23.2
22	22	22	35	50	2040	2040	2040	3250	4630	14000	5170	22.7	21.8	23.7
22	22	22	35	60	1910	1910	1910	3040	5220	14000	4600	20.2	19.4	21.1
22	22	22	35	71	1790	1790	1790	2850	5780	14000	4090	18.0	17.2	18.8
22	22	22	50	50	1860	1860	1860	4210	4210	14000	4350	19.1	18.3	20.0
22	22	22	50	60	1750	1750	1750	3980	4770	14000	3940	17.3	16.6	18.1
22	22	25	25	25	2200	2200	2500	2500	2500	11900	3950	17.3	16.6	18.1
22	22	25	25	35	2200	2200	2500	2500	3500	12900	4570	20.1	19.2	21.0
22	22	25	25	50	2140	2140	2430	2430	4860	14000	5220	22.9	22.0	24.0
22	22	25	25	60	2000	2000	2270	2270	5450	14000	4980	21.9	21.0	22.9
22	22	25	25	71	1870	1870	2120	2120	6020	14000	4400	19.3	18.5	20.2
22	22	25	35	35	2200	2200	2500	3500	3500	13900	5280	23.2	22.2	24.2
22	22	25	35	50	2000	2000	2270	3180	4550	14000	4980	21.9	21.0	22.9
22	22	25	35	60	1880	1880	2130	2990	5120	14000	4450	19.5	18.7	20.4
22	22	25	35	71	1760	1760	2000	2800	5680	14000	3980	17.5	16.8	18.3
22	22	25	50	50	1820	1820	2070	4140	4140	14000	4220	18.5	17.8	19.4
22	22	25	50	60	1720	1720	1960	3910	4690	14000	3830	16.8	16.1	17.6
22	22	35	35	35	2060	2060	3290	3290	3290	14000	5220	22.9	22.0	24.0
22	22	35	35	50	1880	1880	2990	2990	4260	14000	4450	19.5	18.7	20.4
22	22	35	35	60	1770	1770	2820	2820	4820	14000	4010	17.6	16.9	18.4
22	22	35	35	71	1660	1660	2650	2650	5370	14000	3630	15.9	15.3	16.7
22	22	35	50	50	1720	1720	2740	3910	3910	14000	3830	16.8	16.1	17.6
22	25	25	25	25	2200	2500	2500	2500	2500	12200	4120	18.1	17.3	18.9
22	25	25	25	35	2200	2500	2500	2500	3500	13200	4770	20.9	20.1	21.9
22	25	25	25	50	2100	2380	2380	2380	4760	14000	5220	22.9	22.0	24.0
22	25	25	25	60	1960	2230	2230	2230	5350	14000	4810	21.1	20.2	22.1
22	25	25	25	71	1830	2080	2080	2080	5920	14000	4260	18.7	17.9	19.6
22	25	25	35	35	2170	2460	2460	3450	3450	14000	5220	22.9	22.0	24.0
22	25	25	35	50	1960	2230	2230	3120	4460	14000	4810	21.1	20.2	22.1
22	25	25	35	60	1840	2100	2100	2930	5030	14000	4310	18.9	18.1	19.8
22	25	25	35	71	1730	1970	1970	2750	5580	14000	3860	17.0	16.2	17.7
22	25	25	50	50	1790	2030	2030	4070	4070	14000	4090	18.0	17.2	18.8
22	25	25	50	60	1690	1920	1920	3850	4620	14000	3730	16.4	15.7	17.1
22	25	35	35	35	2030	2300	3220	3220	3220	14000	5110	22.4	21.5	23.5
22	25	35	35	50	1840	2100	2930	2930	4190	14000	4310	18.9	18.1	19.8
22	25	35	35	60	1740	1980	2770	2770	4740	14000	3900	17.1	16.4	17.9
22	25	35	50	50	1690	1920	2690	3850	3850	14000	3730	16.4	15.7	17.1
22	35	35	35	35	1900	3020	3020	3020	3020	14000	4550	20.0	19.1	20.9
22	35	35	35	50	1740	2770	2770	2770	3950	14000	3900	17.1	16.4	17.9
25	25	25	25	25	2500	2500	2500	2500	2500	12500	4310	18.9	18.1	19.8
25	25	25	25	35	2500	2500	2500	2500	3500	13500	4980	21.9	21.0	22.9
25	25	25	25	50	2330	2330	2330	2330	4670	14000	5240	23.0	22.1	24.1
25	25	25	25	60	2190	2190	2190	2190	5240	14000	4650	20.4	19.6	21.3
25	25	25	25	71	2050	2050	2050	2050	5800	14000	4140	18.2	17.4	19.0
25	25	25	35	35	2410	2410	2410	3380	3380	14000	5220	22.9	22.0	24.0
25	25	25	35	50	2190	2190	2190	3060	4370	14000	4650	20.4	19.6	21.3
25	25	25	35	60	2060	2060	2060	2880	4940	14000	4180	18.4	17.6	19.2
25	25	25	35	71	1930	1930	1930	2710	5490	14000	3760	16.5	15.8	17.3
25	25	25	50	50	2000	2000	2000	4000	4000	14000	3980	17.5	16.8	18.3
25	25	25	50	60	1890	1890	1890	3780	4540	14000	3630	15.9	15.3	16.7
25	25	35	35	35	2260	2260	3160	3160	3160	14000	4920	21.6	20.7	22.6
25	25	35	35	50	2060	2060	2880	2880	4120	14000	4180	18.4	17.6	19.2
25	25	35	35	60	1940	1940	2720	2720	4670	14000	3790	16.6	16.0	17.4
25	25	35	50	50	1890	1890	2650	3780	3780	14000	3630	15.9	15.3	16.7
25	35	35	35	35	2120	2970	2970	2970	2970	14000	4400	19.3	18.5	20.2
25	35	35	35	50	1940	2720	2720	2720	3890	14000	3790	16.6	16.0	17.4
35	35	35	35	35	2800	2800	2800	2800	2800	14000	3980	17.5	16.8	18.3

5

<Cooling>

Number of operated indoor unit							Capacity of each unit (W)						Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F			230V	240V	220V
6	22	22	22	22	22	22	2200	2200	2200	2200	2200	2200	13200	4770	20.9	20.1	21.9
	22	22	22	22	22	25	2200	2200	2200	2200	2200	2500	13500	4980	21.9	21.0	22.9
	22	22	22	22	22	35	2120	2120	2120	2120	2120	3380	14000	5220	22.9	22.0	24.0
	22	22	22	22	22	50	1920	1920	1920	1920	1920	4380	14000	4650	20.4	19.6	21.3
	22	22	22	22	22	60	1810	1810	1810	1810	1810	4940	14000	4180	18.4	17.6	19.2
	22	22	22	22	22	71	1700	1700	1700	1700	1700	5490	14000	3760	16.5	15.8	17.3
	22	22	22	22	25	25	2200	2200	2200	2200	2500	2500	13800	5200	22.8	21.9	23.9
	22	22	22	22	25	35	2080	2080	2080	2080	2360	3310	14000	5220	22.9	22.0	24.0
	22	22	22	22	25	50	1890	1890	1890	1890	2150	4290	14000	4500	19.8	18.9	20.7
	22	22	22	22	25	60	1780	1780	1780	1780	2020	4860	14000	4050	17.8	17.0	18.6
	22	22	22	22	25	71	1670	1670	1670	1670	1900	5400	14000	3660	16.1	15.4	16.8
	22	22	22	22	35	35	1950	1950	1950	1950	3100	3100	14000	4750	20.9	20.0	21.8
	22	22	22	22	35	50	1780	1780	1780	1780	2830	4050	14000	4050	17.8	17.0	18.6
	22	22	22	22	35	60	1680	1680	1680	1680	2680	4590	14000	3690	16.2	15.5	16.9
	22	22	22	25	25	25	2180	2180	2180	2480	2480	2480	14000	5220	22.9	22.0	24.0
	22	22	22	25	25	35	2040	2040	2040	2320	2320	3240	14000	5170	22.7	21.8	23.7
	22	22	22	25	25	50	1860	1860	1860	2100	2100	4220	14000	4350	19.1	18.3	20.0
	22	22	22	25	25	60	1750	1750	1750	1990	1990	4770	14000	3940	17.3	16.6	18.1
	22	22	22	25	35	35	1910	1910	1910	2170	3040	3040	14000	4600	20.2	19.4	21.1
	22	22	22	25	35	50	1750	1750	1750	1990	2780	3980	14000	3940	17.3	16.6	18.1
	22	22	22	35	35	35	1800	1800	1800	2860	2860	2860	14000	4140	18.2	17.4	19.0
	22	22	25	25	25	25	2140	2140	2430	2430	2430	2430	14000	5220	22.9	22.0	24.0
	22	22	25	25	25	35	2000	2000	2270	2270	2270	3180	14000	4980	21.9	21.0	22.9
	22	22	25	25	25	50	1820	1820	2070	2070	2070	4140	14000	4220	18.5	17.8	19.4
	22	22	25	25	25	60	1720	1720	1960	1960	1960	4680	14000	3830	16.8	16.1	17.6
	22	22	25	25	35	35	1880	1880	2130	2130	2990	2990	14000	4450	19.5	18.7	20.4
	22	22	25	25	35	50	1720	1720	1960	1960	2740	3900	14000	3830	16.8	16.1	17.6
	22	22	25	35	35	35	1770	1770	2000	2820	2820	2820	14000	4010	17.6	16.9	18.4
	22	22	35	35	35	35	1670	1670	2660	2660	2660	2660	14000	3660	16.1	15.4	16.8
	22	25	25	25	25	25	2100	2380	2380	2380	2380	2380	14000	5220	22.9	22.0	24.0
	22	25	25	25	25	35	1960	2230	2230	2230	2230	3120	14000	4810	21.1	20.2	22.1
	22	25	25	25	25	50	1790	2030	2030	2030	2030	4070	14000	4090	18.0	17.2	18.8
	22	25	25	25	25	60	1690	1920	1920	1920	1920	4620	14000	3730	16.4	15.7	17.1
	22	25	25	25	35	35	1840	2100	2100	2100	2930	2930	14000	4310	18.9	18.1	19.8
	22	25	25	25	35	50	1690	1920	1920	1920	2690	3850	14000	3730	16.4	15.7	17.1
	22	25	25	35	35	35	1730	1980	1980	2770	2770	2770	14000	3900	17.1	16.4	17.9
	25	25	25	25	25	25	2330	2330	2330	2330	2330	2330	14000	5240	23.0	22.1	24.1
	25	25	25	25	25	35	2190	2190	2190	2190	2190	3050	14000	4650	20.4	19.6	21.3
	25	25	25	25	25	50	2000	2000	2000	2000	2000	4000	14000	3980	17.5	16.8	18.3
	25	25	25	25	25	60	1890	1890	1890	1890	1890	4540	14000	3630	15.9	15.3	16.7
	25	25	25	25	35	35	2060	2060	2060	2060	2880	2880	14000	4180	18.4	17.6	19.2
	25	25	25	25	35	50	1890	1890	1890	1890	2650	3780	14000	3630	15.9	15.3	16.7
	25	25	25	35	35	35	1940	1940	1940	2720	2720	2720	14000	3790	16.6	16.0	17.4

<Cooling>

Number of operated indoor unit								Capacity of each unit (W)								Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
																		230V	240V	220V
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G						
7	22	22	22	22	22	22	22	2000	2000	2000	2000	2000	2000	2000	14000	4980	21.9	21.0	22.9	
	22	22	22	22	22	22	25	1960	1960	1960	1960	1960	1960	2230	14000	4810	21.1	20.2	22.1	
	22	22	22	22	22	22	35	1840	1840	1840	1840	1840	1840	2930	14000	4310	18.9	18.1	19.8	
	22	22	22	22	22	22	50	1690	1690	1690	1690	1690	1690	3850	14000	3730	16.4	15.7	17.1	
	22	22	22	22	22	25	25	1920	1920	1920	1920	1920	2190	2190	14000	4650	20.4	19.6	21.3	
	22	22	22	22	22	25	35	1810	1810	1810	1810	1810	2060	2880	14000	4180	18.4	17.6	19.2	
	22	22	22	22	22	25	50	1660	1660	1660	1660	1660	1890	3780	14000	3630	15.9	15.3	16.7	
	22	22	22	22	22	35	35	1710	1710	1710	1710	1710	2720	2720	14000	3790	16.6	16.0	17.4	
	22	22	22	22	25	25	25	1890	1890	1890	1890	2140	2140	2140	14000	4500	19.8	18.9	20.7	
	22	22	22	22	25	25	35	1780	1780	1780	1780	2020	2020	2830	14000	4050	17.8	17.0	18.6	
	22	22	22	22	25	35	35	1680	1680	1680	1680	1910	2680	2680	14000	3690	16.2	15.5	16.9	
	22	22	22	25	25	25	25	1850	1850	1850	2110	2110	2110	2110	14000	4350	19.1	18.3	20.0	
	22	22	22	25	25	25	35	1750	1750	1750	1990	1990	1990	2780	14000	3940	17.3	16.6	18.1	
	22	22	25	25	25	25	25	1820	1820	2070	2070	2070	2070	2070	14000	4220	18.5	17.8	19.4	
	22	22	25	25	25	25	35	1710	1710	1960	1960	1960	1960	2740	14000	3830	16.8	16.1	17.6	
	22	25	25	25	25	25	25	1790	2030	2030	2030	2030	2030	2030	14000	4090	18.0	17.2	18.8	
	22	25	25	25	25	25	35	1690	1920	1920	1920	1920	1920	2690	14000	3730	16.4	15.7	17.1	
	25	25	25	25	25	25	25	2000	2000	2000	2000	2000	2000	2000	14000	3980	17.5	16.8	18.3	
	25	25	25	25	25	25	35	1890	1890	1890	1890	1890	1890	2650	14000	3630	15.9	15.3	16.7	

<Cooling>

Number of operated indoor unit									Capacity of each unit (W)								Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
																			230V	240V	220V
8	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G	Unit H	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G	Unit H					
	22	22	22	22	22	22	22	22	1750	1750	1750	1750	1750	1750	1750	1750	14000	3940	17.3	16.6	18.1
	22	22	22	22	22	22	22	25	1720	1720	1720	1720	1720	1720	1720	1960	14000	3830	16.8	16.1	17.6
	22	22	22	22	22	22	25	25	1690	1690	1690	1690	1690	1690	1920	1920	14000	3730	16.4	15.7	17.1
	22	22	22	22	22	25	25	25	1660	1660	1660	1660	1660	1890	1890	1890	14000	3630	15.9	15.3	16.7

(2) Heating mode

<Heating>

Number of operated indoor unit			Capacity of each unit (W)		Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
Unit A	Unit B		Unit A	Unit B			230V	240V	220V
1	22	—	3300	—	3300	1130	5.0	4.8	5.2
	25	—	3600	—	3600	1240	5.4	5.2	5.7
	35	—	4000	—	4000	1370	6.0	5.8	6.3
	50	—	7200	—	7200	2470	10.8	10.4	11.3
	60	—	7900	—	7900	2740	12.0	11.5	12.6
2	71	—	8600	—	8600	3020	13.3	12.7	13.9
	22	22	2500	2500	5000	1720	7.6	7.2	7.9
	22	25	2530	2870	5400	1860	8.2	7.8	8.5
	22	35	2510	3990	6500	2250	9.9	9.5	10.3
	22	50	2510	5690	8200	2880	12.6	12.1	13.2
	22	60	2520	6880	9400	3340	14.7	14.1	15.3
	22	71	2510	8090	10600	3810	16.7	16.0	17.5
	25	25	2850	2850	5700	1960	8.6	8.2	9.0
	25	35	2880	4020	6900	2400	10.5	10.1	11.0
	25	50	2870	5730	8600	3030	13.3	12.8	13.9
	25	60	2850	6850	9700	3450	15.2	14.5	15.8
	25	71	2860	8140	11000	3960	17.4	16.7	18.2
	35	35	4000	4000	8000	2810	12.3	11.8	12.9
	35	50	3990	5710	9700	3450	15.2	14.5	15.8
	35	60	4020	6880	10900	3920	17.2	16.5	18.0
	35	71	4000	8100	12100	4350	19.1	18.3	20.0
	50	50	5700	5700	11400	4120	18.1	17.3	18.9
	50	60	5730	6870	12600	4510	19.8	19.0	20.7
	50	71	5700	8100	13800	4880	21.4	20.5	22.4
	60	60	6850	6850	13700	4850	21.3	20.4	22.3
	60	71	6870	8130	15000	5260	23.1	22.1	24.2
	71	71	8000	8000	16000	5430	23.8	22.9	24.9

<Heating>

Number of operated indoor unit				Capacity of each unit (W)			Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
	Unit A	Unit B	Unit C	Unit A	Unit B	Unit C			230V	240V	220V
3	22	22	22	2500	2500	2500	7500	2620	11.5	11.0	12.0
	22	22	25	2520	2520	2860	7900	2770	12.2	11.7	12.7
	22	22	35	2510	2510	3980	9000	3190	14.0	13.4	14.6
	22	22	50	2500	2500	5690	10700	3850	16.9	16.2	17.7
	22	22	60	2520	2520	6860	11900	4280	18.8	18.0	19.7
	22	22	71	2510	2510	8090	13100	4660	20.5	19.6	21.4
	22	25	25	2500	2850	2850	8200	2880	12.6	12.1	13.2
	22	25	35	2520	2870	4010	9400	3340	14.7	14.1	15.3
	22	25	50	2520	2860	5720	11100	4000	17.6	16.8	18.4
	22	25	60	2510	2850	6840	12200	4380	19.2	18.4	20.1
	22	25	71	2520	2860	8120	13500	4790	21.0	20.2	22.0
	22	35	35	2510	3990	3990	10500	3770	16.6	15.9	17.3
	22	35	50	2510	3990	5700	12200	4380	19.2	18.4	20.1
	22	35	60	2520	4010	6870	13400	4760	20.9	20.0	21.9
	22	35	71	2510	3990	8100	14600	5130	22.5	21.6	23.6
	22	50	50	2500	5700	5700	13900	4910	21.6	20.7	22.5
	22	50	60	2520	5720	6860	15100	5290	23.2	22.3	24.3
	22	50	71	2460	5590	7940	16000	5370	23.6	22.6	24.7
	22	60	60	2480	6760	6760	16000	5430	23.8	22.9	24.9
	22	60	71	2300	6270	7420	16000	4880	21.4	20.5	22.4
	22	71	71	2140	6930	6930	16000	4430	19.5	18.6	20.3
	25	25	25	2860	2860	2860	8600	3030	13.3	12.8	13.9
	25	25	35	2850	2850	3990	9700	3450	15.2	14.5	15.8
	25	25	50	2850	2850	5700	11400	4120	18.1	17.3	18.9
	25	25	60	2860	2860	6870	12600	4510	19.8	19.0	20.7
	25	25	71	2850	2850	8100	13800	4880	21.4	20.5	22.4
	25	35	35	2860	4020	4020	10900	3920	17.2	16.5	18.0
	25	35	50	2860	4010	5730	12600	4510	19.8	19.0	20.7
	25	35	60	2850	4000	6850	13700	4850	21.3	20.4	22.3
	25	35	71	2860	4010	8130	15000	5260	23.1	22.1	24.2
	25	50	50	2860	5720	5720	14300	5040	22.1	21.2	23.1
	25	50	60	2850	5700	6840	15400	5380	23.6	22.6	24.7
	25	50	71	2740	5480	7780	16000	5210	22.9	21.9	23.9
	25	60	60	2760	6620	6620	16000	5270	23.1	22.2	24.2
	25	60	71	2560	6150	7280	16000	4750	20.9	20.0	21.8
	25	71	71	2400	6800	6800	16000	4320	19.0	18.2	19.8
	35	35	35	4000	4000	4000	12000	4320	19.0	18.2	19.8
	35	35	50	4000	4000	5700	13700	4850	21.3	20.4	22.3
	35	35	60	4010	4010	6880	14900	5230	23.0	22.0	24.0
	35	35	71	3970	3970	8060	16000	5480	24.1	23.1	25.2
	35	50	50	3990	5700	5700	15400	5380	23.6	22.6	24.7
	35	50	60	3860	5520	6620	16000	5270	23.1	22.2	24.2
	35	50	71	3590	5130	7280	16000	4750	20.9	20.0	21.8
	35	60	60	3610	6190	6190	16000	4790	21.0	20.2	22.0
	35	60	71	3370	5780	6840	16000	4350	19.1	18.3	20.0
	35	71	71	3160	6420	6420	16000	3990	17.5	16.8	18.3
	50	50	50	5330	5330	5330	16000	5020	22.0	21.1	23.0
	50	50	60	5000	5000	6000	16000	4580	20.1	19.3	21.0
	50	50	71	4680	4680	6640	16000	4180	18.4	17.6	19.2
	50	60	60	4700	5650	5650	16000	4210	18.5	17.7	19.3
	50	60	71	4420	5300	6280	16000	3870	17.0	16.3	17.8
	60	60	60	5330	5330	5330	16000	3900	17.1	16.3	17.8

<Heating>

Number of operated indoor unit					Capacity of each unit (W)				Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
Unit A	Unit B	Unit C	Unit D		Unit A	Unit B	Unit C	Unit D			230V	240V	220V
22	22	22	22	2520	2520	2520	2520	2520	10100	3610	15.9	15.2	16.6
22	22	22	25	2510	2510	2510	2860		10400	3730	16.4	15.7	17.1
22	22	22	35	2500	2500	2500	3990		11500	4150	18.2	17.5	19.1
22	22	22	50	2520	2520	2520	5730		13300	4730	20.8	19.9	21.7
22	22	22	60	2510	2510	2510	6860		14400	5070	22.3	21.3	23.3
22	22	22	71	2520	2520	2520	8140		15700	5470	24.0	23.0	25.1
22	22	25	25	2500	2500	2850	2850		10700	3850	16.9	16.2	17.7
22	22	25	35	2520	2520	2860	4000		11900	4280	18.8	18.0	19.7
22	22	25	50	2510	2510	2860	5710		13600	4820	21.2	20.3	22.1
22	22	25	60	2510	2510	2850	6830		14700	5160	22.7	21.7	23.7
22	22	25	71	2510	2510	2860	8110		16000	5540	24.3	23.3	25.4
22	22	35	35	2510	2510	3990	3990		13000	4630	20.3	19.5	21.3
22	22	35	50	2510	2510	3990	5690		14700	5160	22.7	21.7	23.7
22	22	35	60	2520	2520	4000	6860		15900	5530	24.3	23.3	25.4
22	22	35	71	2350	2350	3730	7570		16000	5020	22.0	21.1	23.0
22	22	50	50	2440	2440	5560	5560		16000	5320	23.4	22.4	24.4
22	22	50	60	2290	2290	5190	6230		16000	4830	21.2	20.3	22.2
22	22	50	71	2130	2130	4850	6880		16000	4390	19.3	18.5	20.2
22	22	60	60	2150	2150	5850	5850		16000	4430	19.5	18.6	20.3
22	22	60	71	2010	2010	5490	6490		16000	4050	17.8	17.0	18.6
22	25	25	25	2520	2860	2860	2860		11100	4000	17.6	16.8	18.4
22	25	25	35	2510	2850	2850	3990		12200	4380	19.2	18.4	20.1
22	25	25	50	2510	2850	2850	5690		13900	4910	21.6	20.7	22.5
22	25	25	60	2520	2860	2860	6860		15100	5290	23.2	22.3	24.3
22	25	25	71	2460	2800	2800	7940		16000	5370	23.6	22.6	24.7
22	25	35	35	2520	2860	4010	4010		13400	4760	20.9	20.0	21.9
22	25	35	50	2520	2860	4000	5720		15100	5290	23.2	22.3	24.3
22	25	35	60	2480	2820	3940	6760		16000	5430	23.8	22.9	24.9
22	25	35	71	2300	2610	3660	7420		16000	4880	21.4	20.5	22.4
22	25	50	50	2390	2720	5440	5440		16000	5160	22.7	21.7	23.7
22	25	50	60	2240	2550	5100	6110		16000	4700	20.6	19.8	21.6
22	25	50	71	2100	2380	4760	6760		16000	4280	18.8	18.0	19.7
22	25	60	60	2100	2400	5750	5750		16000	4320	19.0	18.2	19.8
22	25	60	71	1980	2250	5390	6380		16000	3960	17.4	16.7	18.2
22	35	35	35	2500	4000	4000	4000		14500	5100	22.4	21.5	23.4
22	35	35	50	2480	3940	3940	5630		16000	5430	23.8	22.9	24.9
22	35	35	60	2320	3680	3680	6320		16000	4920	21.6	20.7	22.6
22	35	35	71	2160	3440	3440	6960		16000	4460	19.6	18.8	20.5
22	35	50	50	2230	3570	5100	5100		16000	4700	20.6	19.8	21.6
22	35	50	60	2110	3350	4790	5750		16000	4320	19.0	18.2	19.8
22	35	50	71	1980	3150	4490	6380		16000	3960	17.4	16.7	18.2
22	35	60	60	1990	3160	5420	5420		16000	3990	17.5	16.8	18.3
22	50	50	50	2050	4650	4650	4650		16000	4150	18.2	17.5	19.1
22	50	50	60	1930	4400	4400	5270		16000	3850	16.9	16.2	17.7
25	25	25	25	2850	2850	2850	2850		11400	4120	18.1	17.3	18.9
25	25	25	35	2860	2860	2860	4010		12600	4510	19.8	19.0	20.7
25	25	25	50	2860	2860	2860	5720		14300	5040	22.1	21.2	23.1
25	25	25	60	2850	2850	2850	6840		15400	5380	23.6	22.6	24.7
25	25	25	71	2740	2740	2740	7780		16000	5210	22.9	21.9	23.9
25	25	35	35	2850	2850	4000	4000		13700	4850	21.3	20.4	22.3
25	25	35	50	2850	2850	3990	5700		15400	5380	23.6	22.6	24.7
25	25	35	60	2760	2760	3860	6620		16000	5270	23.1	22.2	24.2
25	25	35	71	2560	2560	3590	7280		16000	4750	20.9	20.0	21.8
25	25	50	50	2670	2670	5330	5330		16000	5020	22.0	21.1	23.0
25	25	50	60	2500	2500	5000	6000		16000	4580	20.1	19.3	21.0
25	25	50	71	2340	2340	4680	6640		16000	4180	18.4	17.6	19.2
25	25	60	60	2350	2350	5650	5650		16000	4210	18.5	17.7	19.3
25	25	60	71	2210	2210	5300	6280		16000	3870	17.0	16.3	17.8
25	35	35	35	2870	4010	4010	4010		14900	5230	23.0	22.0	24.0
25	35	35	50	2760	3860	3860	5520		16000	5270	23.1	22.2	24.2
25	35	35	60	2580	3610	3610	6190		16000	4790	21.0	20.2	22.0
25	35	35	71	2410	3370	3370	6840		16000	4350	19.1	18.3	20.0
25	35	50	50	2500	3500	5000	5000		16000	4580	20.1	19.3	21.0
25	35	50	60	2350	3290	4710	5650		16000	4210	18.5	17.7	19.3
25	35	50	71	2210	3090	4420	6280		16000	3870	17.0	16.3	17.8
25	35	60	60	2220	3110	5330	5330		16000	3900	17.1	16.4	17.9
25	50	50	50	2290	4570	4570	4570		16000	4050	17.8	17.0	18.6
25	50	50	60	2160	4320	4320	5190		16000	3760	16.5	15.8	17.3
35	35	35	35	4000	4000	4000	4000		16000	5540	24.3	23.3	25.4
35	35	35	50	3610	3610	3610	5160		16000	4790	21.0	20.2	22.0
35	35	35	60	3390	3390	3390	5820		16000	4390	19.3	18.5	20.2
35	35	35	71	3180	3180	3180	6450		16000	4020	17.7	16.9	18.5
35	35	50	50	3290	3290	4710	4710		16000	4210	18.5	17.7	19.3
35	35	50	60	3110	3110	4440	5330		16000	3900	17.1	16.4	17.9
35	50	50	50	3030	4320	4320	4320		16000	3760	16.5	15.8	17.3

<Heating>

Number of operated indoor unit						Capacity of each unit (W)					Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
Unit A	Unit B	Unit C	Unit D	Unit E	Unit A	Unit B	Unit C	Unit D	Unit E	230V			240V	220V	
5	22	22	22	22	22	2520	2520	2520	2520	2520	12600	4510	19.8	19.0	20.7
	22	22	22	22	25	2510	2510	2510	2510	2850	12900	4600	20.2	19.4	21.1
	22	22	22	22	35	2520	2520	2520	2520	4010	14100	4980	21.9	21.0	22.9
	22	22	22	22	50	2520	2520	2520	2520	5720	15800	5500	24.2	23.1	25.3
	22	22	22	22	60	2380	2380	2380	2380	6480	16000	5110	22.4	21.5	23.5
	22	22	22	22	71	2210	2210	2210	2210	7140	16000	4620	20.3	19.4	21.2
	22	22	22	25	25	2520	2520	2520	2870	2870	13300	4730	20.8	19.9	21.7
	22	22	22	25	35	2510	2510	2510	2860	4000	14400	5070	22.3	21.3	23.3
	22	22	22	25	50	2500	2500	2500	2840	5660	16000	5480	24.1	23.1	25.2
	22	22	22	25	60	2330	2330	2330	2650	6360	16000	4970	21.8	20.9	22.8
	22	22	22	25	71	2170	2170	2170	2470	7010	16000	4500	19.8	18.9	20.7
	22	22	22	35	35	2510	2510	2510	3980	3980	15500	5410	23.8	22.8	24.8
	22	22	22	35	50	2330	2330	2330	3710	5300	16000	4970	21.8	20.9	22.8
	22	22	22	35	60	2190	2190	2190	3480	5950	16000	4540	19.9	19.1	20.8
	22	22	22	35	71	2050	2050	2050	3260	6590	16000	4150	18.2	17.5	19.1
	22	22	22	50	50	2120	2120	2120	4820	4820	16000	4350	19.1	18.3	20.0
	22	22	22	50	60	2000	2000	2000	4550	5450	16000	4020	17.7	16.9	18.5
	22	22	25	25	25	2510	2510	2860	2860	2860	13600	4820	21.2	20.3	22.1
	22	22	25	25	35	2510	2510	2850	2850	3980	14700	5160	22.7	21.7	23.7
	22	22	25	25	50	2440	2440	2780	2780	5560	16000	5320	23.4	22.4	24.4
	22	22	25	25	60	2290	2290	2600	2600	6220	16000	4830	21.2	20.3	22.2
	22	22	25	25	71	2130	2130	2420	2420	6880	16000	4390	19.3	18.5	20.2
	22	22	25	35	35	2520	2520	2860	4000	4000	15900	5530	24.3	23.3	25.4
	22	22	25	35	50	2290	2290	2600	3640	5180	16000	4830	21.2	20.3	22.2
	22	22	25	35	60	2150	2150	2440	3410	5850	16000	4430	19.5	18.6	20.3
	22	22	25	35	71	2010	2010	2290	3200	6490	16000	4050	17.8	17.0	18.6
	22	22	25	50	50	2080	2080	2370	4730	4730	16000	4250	18.7	17.9	19.5
	22	22	25	50	60	1970	1970	2230	4470	5360	16000	3930	17.3	16.5	18.0
	22	22	35	35	35	2360	2360	3760	3760	3760	16000	5060	22.2	21.3	23.2
	22	22	35	35	50	2150	2150	3410	3410	4880	16000	4430	19.5	18.6	20.3
	22	22	35	35	60	2020	2020	3220	3220	5520	16000	4080	17.9	17.2	18.7
	22	22	35	35	71	1900	1900	3030	3030	6140	16000	3760	16.5	15.8	17.3
	22	22	35	50	50	1970	1970	3120	4470	4470	16000	3930	17.3	16.5	18.0
	22	25	25	25	25	2500	2850	2850	2850	2850	13900	4910	21.6	20.7	22.5
	22	25	25	25	35	2520	2860	2860	2860	4000	15100	5290	23.2	22.3	24.3
	22	25	25	25	50	2390	2720	2720	2720	5440	16000	5160	22.7	21.7	23.7
	22	25	25	25	60	2240	2550	2550	2550	6110	16000	4700	20.6	19.8	21.6
	22	25	25	25	71	2100	2380	2380	2380	6760	16000	4280	18.8	18.0	19.7
	22	25	25	35	35	2480	2820	2820	3940	3940	16000	5430	23.8	22.9	24.9
	22	25	25	35	50	2240	2550	2550	3570	5090	16000	4700	20.6	19.8	21.6
	22	25	25	35	60	2110	2400	2400	3350	5740	16000	4320	19.0	18.2	19.8
	22	25	25	35	71	1980	2250	2250	3150	6370	16000	3960	17.4	16.7	18.2
	22	25	25	50	50	2040	2330	2330	4650	4650	16000	4150	18.2	17.5	19.1
	22	25	25	50	60	1930	2200	2200	4400	5270	16000	3850	16.9	16.2	17.7
	22	25	35	35	35	2320	2630	3680	3680	3680	16000	4920	21.6	20.7	22.6
	22	25	35	35	50	2110	2400	3350	3350	4790	16000	4320	19.0	18.2	19.8
	22	25	35	35	60	1990	2260	3160	3160	5420	16000	3990	17.5	16.8	18.3
	22	25	35	50	50	1920	2200	3080	4400	4400	16000	3850	16.9	16.2	17.7
	22	35	35	35	35	2160	3460	3460	3460	3460	16000	4500	19.8	18.9	20.7
	22	35	35	35	50	1990	3160	3160	3160	4520	16000	3990	17.5	16.8	18.3
25	25	25	25	25	2860	2860	2860	2860	2860	14300	5040	22.1	21.2	23.1	
25	25	25	25	35	2850	2850	2850	2850	3990	15400	5380	23.6	22.6	24.7	
25	25	25	25	50	2670	2670	2670	2670	5320	16000	5020	22.0	21.1	23.0	
25	25	25	25	60	2500	2500	2500	2500	6000	16000	4580	20.1	19.3	21.0	
25	25	25	25	71	2340	2340	2340	2340	6640	16000	4180	18.4	17.6	19.2	
25	25	25	35	35	2760	2760	2760	3860	3860	16000	5270	23.1	22.2	24.2	
25	25	25	35	50	2500	2500	2500	3500	5000	16000	4580	20.1	19.3	21.0	
25	25	25	35	60	2350	2350	2350	3290	5650	16000	4210	18.5	17.7	19.3	
25	25	25	35	71	2210	2210	2210	3090	6280	16000	3870	17.0	16.3	17.8	
25	25	25	50	50	2290	2290	2290	4560	4560	16000	4050	17.8	17.0	18.6	
25	25	25	50	60	2160	2160	2160	4320	5190	16000	3760	16.5	15.8	17.3	
25	25	35	35	35	2580	2580	3610	3610	3610	16000	4790	21.0	20.2	22.0	
25	25	35	35	50	2350	2350	3290	3290	4710	16000	4210	18.5	17.7	19.3	
25	25	35	35	60	2220	2220	3110	3110	5330	16000	3900	17.1	16.4	17.9	
25	25	35	50	50	2160	2160	3030	4320	4320	16000	3760	16.5	15.8	17.3	
25	35	35	35	35	2420	3390	3390	3390	3390	16000	4390	19.3	18.5	20.2	
25	35	35	35	50	2220	3110	3110	3110	4440	16000	3900	17.1	16.4	17.9	
35	35	35	35	35	3200	3200	3200	3200	3200	16000	4050	17.8	17.0	18.6	

<Heating>

Number of operated indoor unit							Capacity of each unit (W)						Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
Unit A	Unit B	Unit C	Unit D	Unit E	Unit F		Unit A	Unit B	Unit C	Unit D	Unit E	Unit F			230V	240V	220V
22	22	22	22	22	22	22	2510	2510	2510	2510	2510	2510	15100	5290	23.2	22.3	24.3
22	22	22	22	22	25	25	2510	2510	2510	2510	2510	2850	15400	5380	23.6	22.6	24.7
22	22	22	22	22	35	35	2430	2430	2430	2430	2430	3850	16000	5270	23.1	22.2	24.2
22	22	22	22	22	50	50	2200	2200	2200	2200	2200	5000	16000	4580	20.1	19.3	21.0
22	22	22	22	22	60	60	2070	2070	2070	2070	2070	5650	16000	4210	18.5	17.7	19.3
22	22	22	22	22	71	71	1940	1940	1940	1940	1940	6280	16000	3870	17.0	16.3	17.8
22	22	22	22	25	25	25	2520	2520	2520	2520	2860	2860	15800	5500	24.2	23.1	25.3
22	22	22	22	25	35	35	2380	2380	2380	2380	2700	3780	16000	5110	22.4	21.5	23.5
22	22	22	22	25	50	50	2160	2160	2160	2160	2450	4910	16000	4460	19.6	18.8	20.5
22	22	22	22	25	60	60	2030	2030	2030	2030	2310	5550	16000	4120	18.1	17.3	18.9
22	22	22	22	25	71	71	1910	1910	1910	1910	2170	6170	16000	3790	16.6	16.0	17.4
22	22	22	22	35	35	35	2230	2230	2230	2230	3540	3540	16000	4660	20.5	19.6	21.4
22	22	22	22	35	50	50	2030	2030	2030	2030	3240	4620	16000	4120	18.1	17.3	18.9
22	22	22	22	35	60	60	1920	1920	1920	1920	3060	5250	16000	3820	16.8	16.1	17.5
22	22	22	25	25	25	25	2500	2500	2500	2830	2830	2830	16000	5480	24.1	23.1	25.2
22	22	22	25	25	35	35	2330	2330	2330	2650	2650	3710	16000	4970	21.8	20.9	22.8
22	22	22	25	25	50	50	2120	2120	2120	2410	2410	4820	16000	4350	19.1	18.3	20.0
22	22	22	25	25	60	60	2000	2000	2000	2270	2270	5450	16000	4020	17.7	16.9	18.5
22	22	22	25	35	35	35	2190	2190	2190	2470	3480	3480	16000	4540	19.9	19.1	20.8
22	22	22	25	35	50	50	2000	2000	2000	2270	3180	4550	16000	4020	17.7	16.9	18.5
22	22	22	35	35	35	35	2060	2060	2060	3270	3270	3270	16000	4180	18.4	17.6	19.2
22	22	25	25	25	25	25	2440	2440	2780	2780	2780	2780	16000	5320	23.4	22.4	24.4
22	22	25	25	25	35	35	2280	2280	2600	2600	2600	3640	16000	4830	21.2	20.3	22.2
22	22	25	25	25	50	50	2080	2080	2370	2370	2370	4730	16000	4250	18.7	17.9	19.5
22	22	25	25	25	60	60	1970	1970	2230	2230	2230	5360	16000	3930	17.3	16.5	18.0
22	22	25	25	35	35	35	2150	2150	2440	2440	3410	3410	16000	4430	19.5	18.6	20.3
22	22	25	25	35	50	50	1970	1970	2230	2230	3130	4470	16000	3930	17.3	16.5	18.0
22	22	25	35	35	35	35	2020	2020	2300	3220	3220	3220	16000	4080	17.9	17.2	18.7
22	22	35	35	35	35	35	1910	1910	3040	3040	3040	3040	16000	3790	16.6	16.0	17.4
22	25	25	25	25	25	25	2390	2720	2720	2720	2720	2720	16000	5160	22.7	21.7	23.7
22	25	25	25	25	35	35	2240	2550	2550	2550	2550	3560	16000	4700	20.6	19.8	21.6
22	25	25	25	25	50	50	2040	2330	2330	2330	2330	4640	16000	4150	18.2	17.5	19.1
22	25	25	25	25	60	60	1930	2200	2200	2200	2200	5270	16000	3850	16.9	16.2	17.7
22	25	25	25	35	35	35	2100	2400	2400	2400	3350	3350	16000	4320	19.0	18.2	19.8
22	25	25	25	35	50	50	1930	2200	2200	2200	3080	4390	16000	3850	16.9	16.2	17.7
22	25	25	35	35	35	35	1990	2260	2260	3160	3160	3160	16000	3990	17.5	16.8	18.3
25	25	25	25	25	25	25	2660	2660	2660	2660	2660	2660	16000	5020	22.0	21.1	23.0
25	25	25	25	25	35	35	2500	2500	2500	2500	2500	3500	16000	4580	20.1	19.3	21.0
25	25	25	25	25	50	50	2280	2280	2280	2280	2280	4570	16000	4050	17.8	17.0	18.6
25	25	25	25	25	60	60	2160	2160	2160	2160	2160	5190	16000	3760	16.5	15.8	17.3
25	25	25	25	35	35	35	2350	2350	2350	2350	3290	3290	16000	4210	18.5	17.7	19.3
25	25	25	25	35	50	50	2160	2160	2160	2160	3030	4320	16000	3760	16.5	15.8	17.3
25	25	25	35	35	35	35	2220	2220	2220	3110	3110	3110	16000	3900	17.1	16.4	17.9

<Heating>

Number of operated indoor unit								Capacity of each unit (W)								Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G				230V	240V	220V
7	22	22	22	22	22	22	22	2280	2280	2280	2280	2280	2280	2280	16000	4830		21.2	20.3	22.2
	22	22	22	22	22	22	25	2240	2240	2240	2240	2240	2240	2550	16000	4700		20.6	19.8	21.6
	22	22	22	22	22	22	35	2110	2110	2110	2110	2110	2110	3340	16000	4320		19.0	18.2	19.8
	22	22	22	22	22	22	50	1930	1930	1930	1930	1930	1930	4400	16000	3850		16.9	16.2	17.7
	22	22	22	22	22	25	25	2200	2200	2200	2200	2200	2500	2500	16000	4580		20.1	19.3	21.0
	22	22	22	22	22	25	35	2070	2070	2070	2070	2070	2350	3290	16000	4210		18.5	17.7	19.3
	22	22	22	22	22	25	50	1900	1900	1900	1900	1900	2160	4320	16000	3760		16.5	15.8	17.3
	22	22	22	22	22	35	35	1960	1960	1960	1960	1960	3100	3100	16000	3900		17.1	16.4	17.9
	22	22	22	22	25	25	25	2160	2160	2160	2160	2450	2450	2450	16000	4460		19.6	18.8	20.5
	22	22	22	22	25	25	35	2030	2030	2030	2030	2310	2310	3240	16000	4120		18.1	17.3	18.9
	22	22	22	22	25	35	35	1920	1920	1920	1920	2190	3060	3060	16000	3820		16.8	16.1	17.5
	22	22	22	25	25	25	25	2120	2120	2120	2410	2410	2410	2410	16000	4350		19.1	18.3	20.0
	22	22	22	25	25	25	35	2000	2000	2000	2270	2270	2270	3180	16000	4020		17.7	16.9	18.5
	22	22	25	25	25	25	25	2070	2070	2370	2370	2370	2370	2370	16000	4250		18.7	17.9	19.5
	22	22	25	25	25	25	35	1970	1970	2230	2230	2230	2230	3130	16000	3930		17.3	16.5	18.0
	22	25	25	25	25	25	25	2050	2320	2320	2320	2320	2320	2320	16000	4150		18.2	17.5	19.1
	22	25	25	25	25	25	35	1930	2200	2200	2200	2200	2200	3070	16000	3850		16.9	16.2	17.7
	25	25	25	25	25	25	25	2280	2280	2280	2280	2280	2280	2280	16000	4050		17.8	17.0	18.6
	25	25	25	25	25	25	35	2160	2160	2160	2160	2160	2160	3030	16000	3760		16.5	15.8	17.3

<Heating>

Number of operated indoor unit									Capacity of each unit (W)								Total rated capacity (W)	Outdoor unit input (W)	Outdoor unit current (A)		
																			230V	240V	220V
8	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G	Unit H	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G	Unit H					
	22	22	22	22	22	22	22	22	2000	2000	2000	2000	2000	2000	2000	2000	16000	4020	17.7	16.9	18.5
	22	22	22	22	22	22	22	25	1960	1960	1960	1960	1960	1960	1960	2230	16000	3930	17.3	16.5	18.0
	22	22	22	22	22	22	25	25	1930	1930	1930	1930	1930	1930	2200	2200	16000	3850	16.9	16.2	17.7
22	22	22	22	22	25	25	25	1900	1900	1900	1900	1900	2160	2160	2160	16000	3760	16.5	15.8	17.3	

5-2. CORRECTING COOLING AND HEATING CAPACITY

5-2-1. Correcting Changes in Air Conditions

(1) The performance curve charts (Figure 1-1, 1-2, 2-1, 2-2) show the change ratio of capacity and input (power consumption) according to the indoor and outdoor temperature condition when define the rated capacity (total capacity) and rated input under the standard condition in standard piping length (5m) as "1.0".

- Standard conditions:

Rated cooling capacity	Indoor D.B. 27°C / W.B. 19°C Outdoor D.B. 35°C
Rated heating capacity	Indoor D.B. 20°C Outdoor D.B. 7°C / W.B. 6°C

- Use the rated capacity and rated power values given in the characteristics table for each indoor unit.
- The capacity is the single value on the side of the outdoor unit;
The capacity on the sides of each indoor unit must be added to obtain the total capacity.

(2) The capacity of each indoor unit may be obtained by multiplying the total capacity obtained in (1) by the ratio between the individual capacity at the rated time and the total capacity at the rated time.

$$\text{Individual capacity under stated conditions} = \text{Total capacity under the stated conditions} \times \frac{\text{Individual capacity at the rated time}}{\text{Total capacity at the rated time}}$$

(3) Capacity correction factor curve

Fig.1-1
Cooling capacity

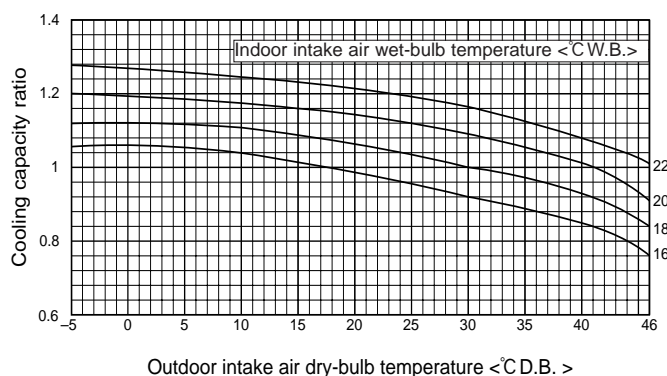


Fig.1-2
Cooling input

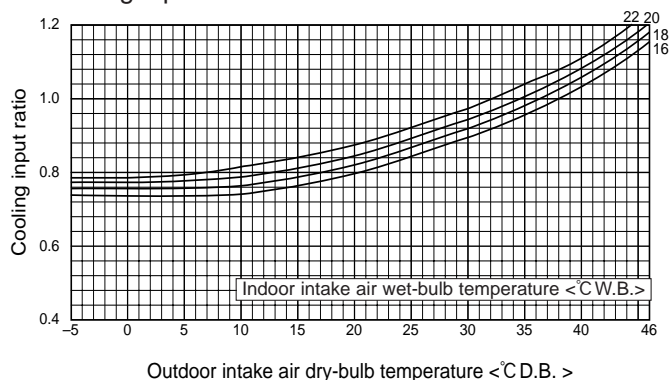


Fig.2-1
Heating capacity

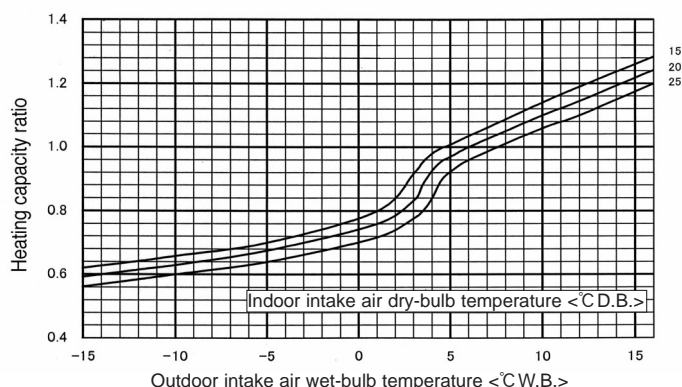
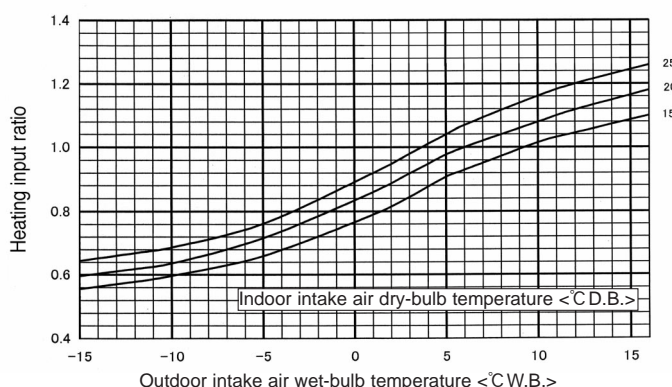


Fig.2-2
Heating input



Note : These diagrams show the case where the operation frequency of a compressor is fixed.

5-2-2. Correcting Capacity for Changes in the Length of Refrigerant Piping

To obtain the ratio (and the corrected piping length) of the outdoor units rated capacity and the total in-use indoor capacity, first find the capacity ratio corresponding to the standard piping length from Fig.3, Fig.4 and then multiply by the capacity from Fig.1-1, 1-2, Fig.2-1, 2-2 to obtain the actual capacity.

(1) Capacity correction factor

Fig.3 Cooling capacity correction curve

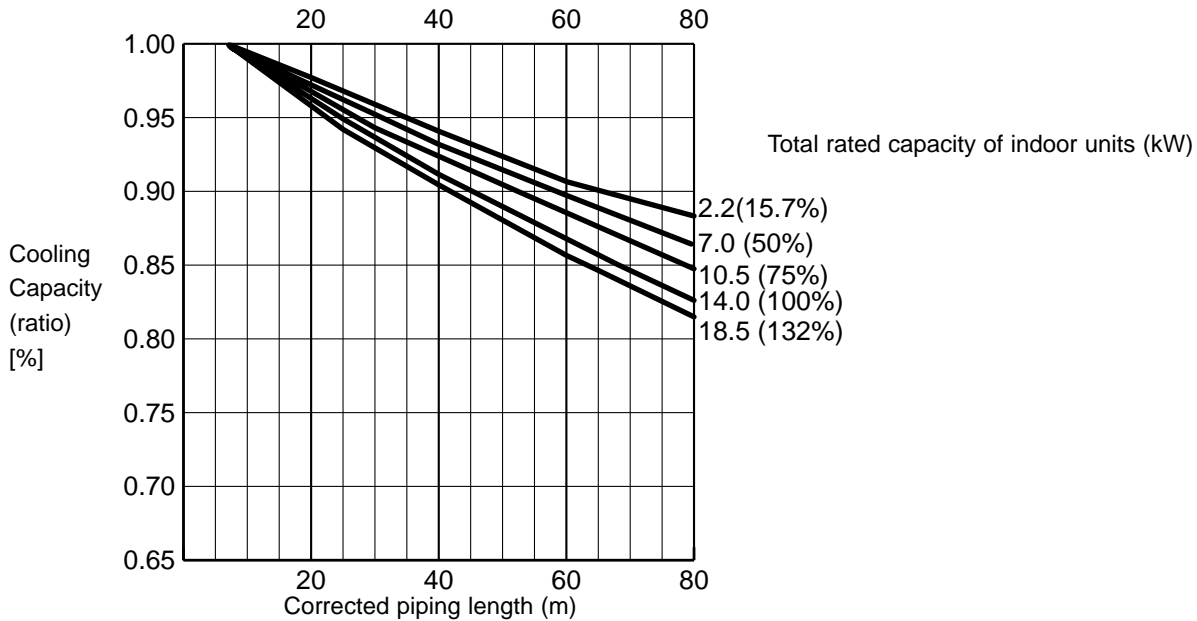
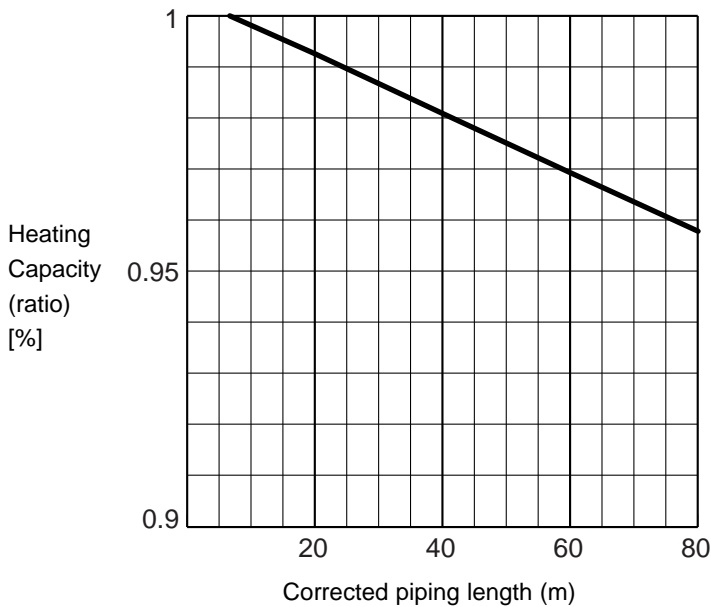


Fig.4 Heating capacity correction curve

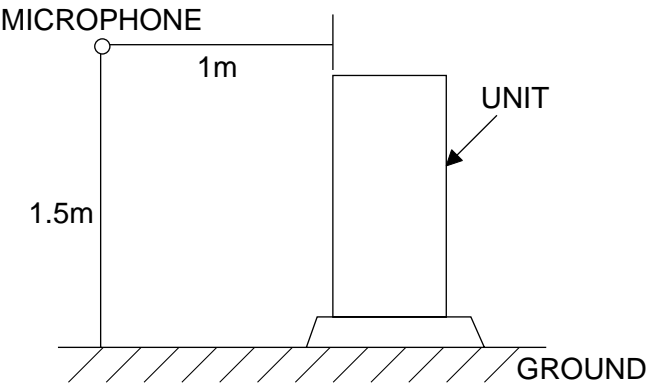


(2) Method for Obtaining the Corrected Piping Length

Corrected piping length = (Actual piping length between outdoor unit and the farthest indoor unit) + (0.30 × number of bends in the piping) (m)

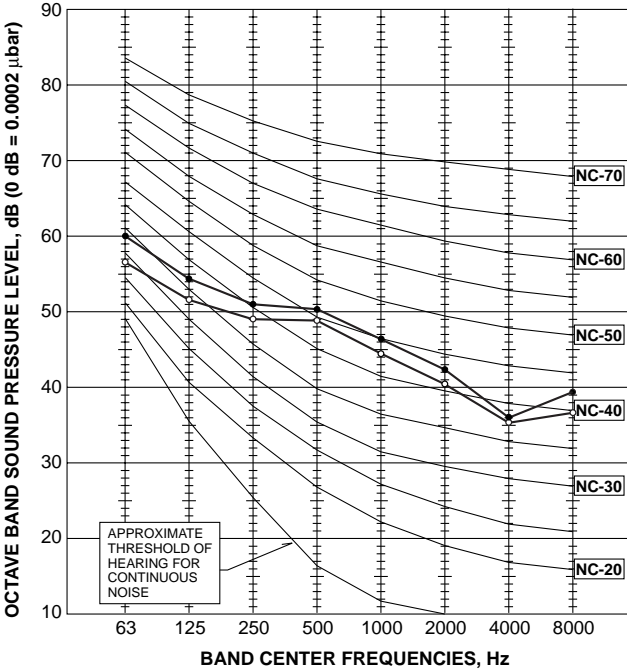


5-3. NOISE CRITERION CURVES



MXZ-8A140VA
MXZ-8A140VA₁
MXZ-8A140VA₂
MXZ-8A140VA₃

MODE	SPL(dB)	LINE
COOLING	50	○—○
HEATING	52	●—●



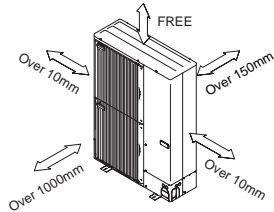
6-1. OUTDOOR UNIT

MXZ-8A140VA MXZ-8A140VA₁ MXZ-8A140VA₂

unit : mm

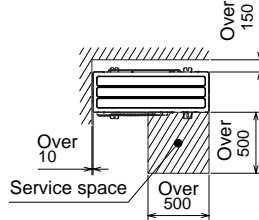
1 FREE SPACE (Around the unit)

The diagram below shows a basic example.
Explanation of particular details are given in the installation manuals etc.



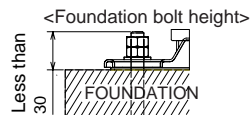
2 SERVICE SPACE

Dimensions of space needed for service access are shown in the below diagram.



3 FOUNDATION BOLTS

Please secure the unit firmly with 4 foundation (M10) bolts. (Bolts and washers must be purchased locally.)

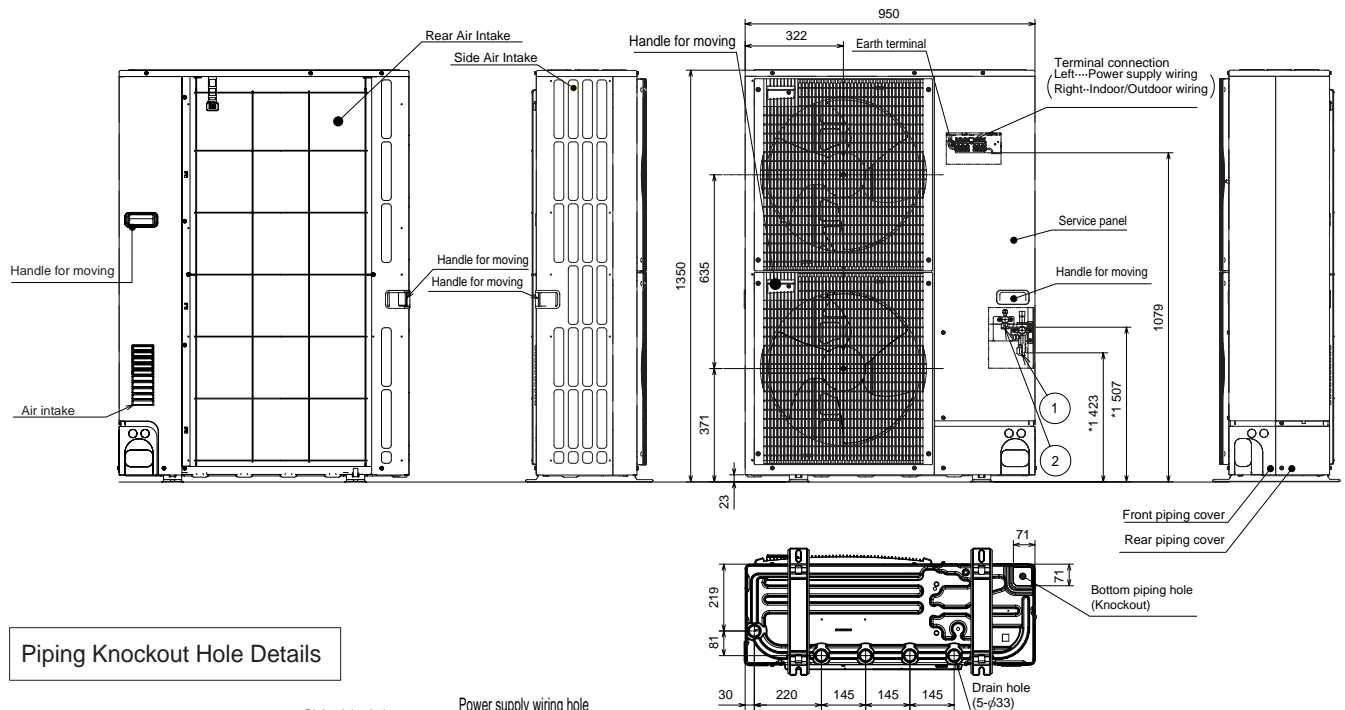


4 PIPING-WIRING DIRECTIONS

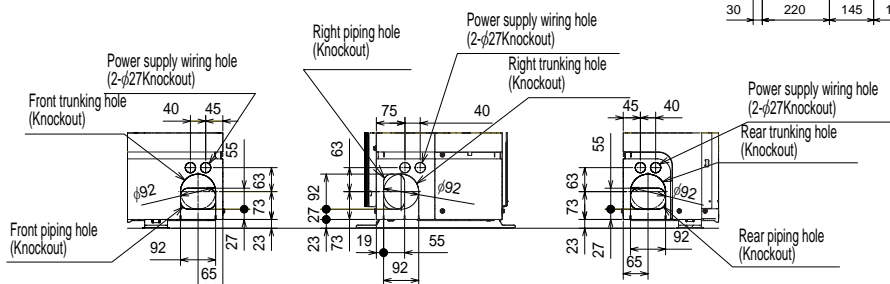
Piping and wiring connections can be made from 4 directions: front, right, rear and below.

Example of Notes

- ①---Refrigerant GAS pipe connection (FLARE)φ15.88(5/8 inch)
②---Refrigerant LIQUID pipe connection (FLARE)φ9.52(3/8 inch)
Indication of STOP VALVE connection location



Piping Knockout Hole Details



--

unit : mm

1 FREE SPACE (Around the unit)

2 SERVICE SPACE

Diagram illustrating the required clearances for a fire alarm pull station:

- Device height: 150
- Device width: 175
- Clearance from wall: Over 10
- Clearance from floor: Over 500
- Service space: Over 500

3 FOUNDATION BOLTS

Less than 30

<Foundation bolt height>

FOUNDATION

4 PIPING-WIRING DIRECTIONS

2-U Shaped notched holes
(Foundation Bolt M10)

175

19

370

417

32

56

42

53

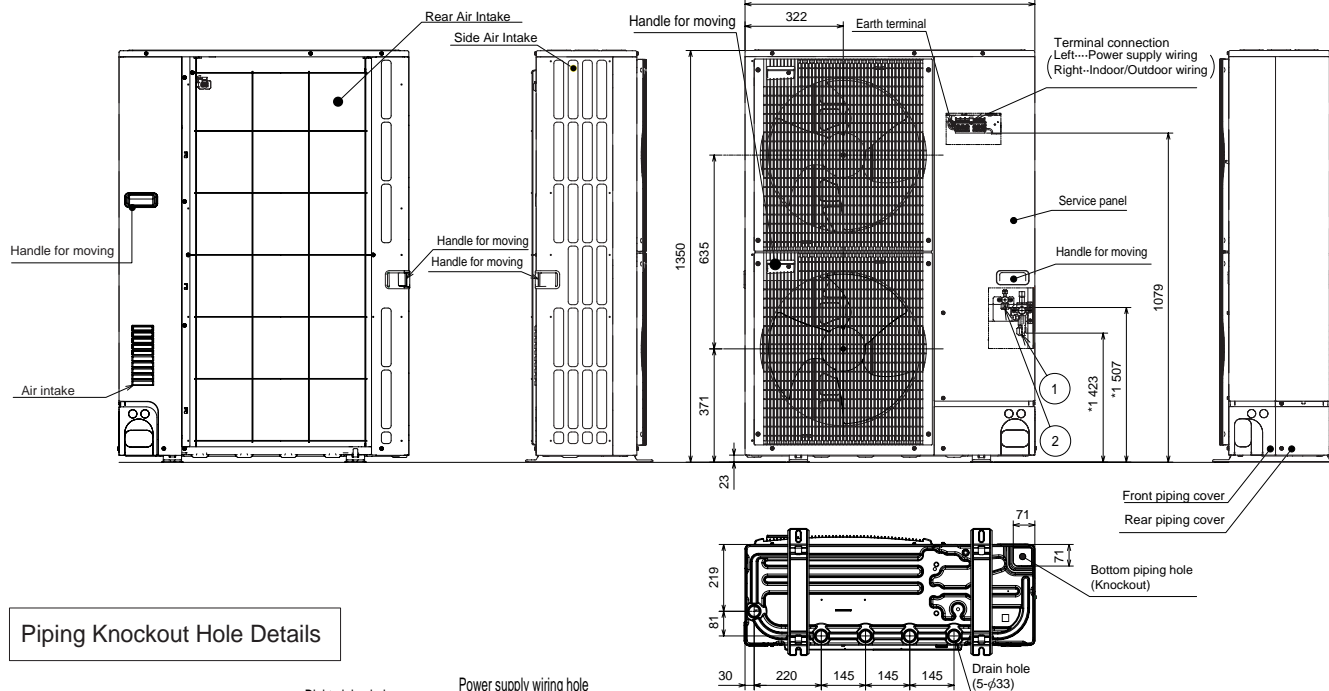
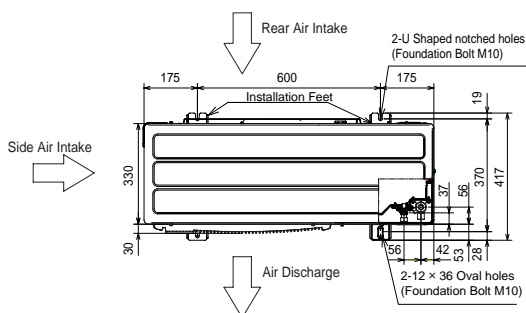
28

56

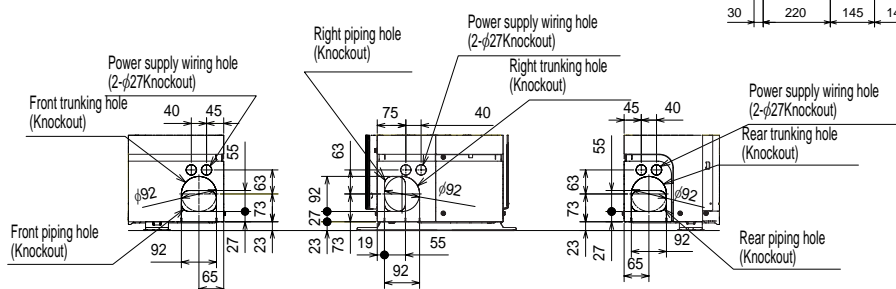
2-12 x 36 Oval holes
(Foundation Bolt M10)

Example of Notes

- ②...Refrigerant LIQUID pipe connection (FLARE) $\phi 9.52$ (3/8 inch)
Indication of STOP VALVE connection location



Piping Knockout Hole Details



6-2. BRANCH BOX UNIT PAC-AK50BC

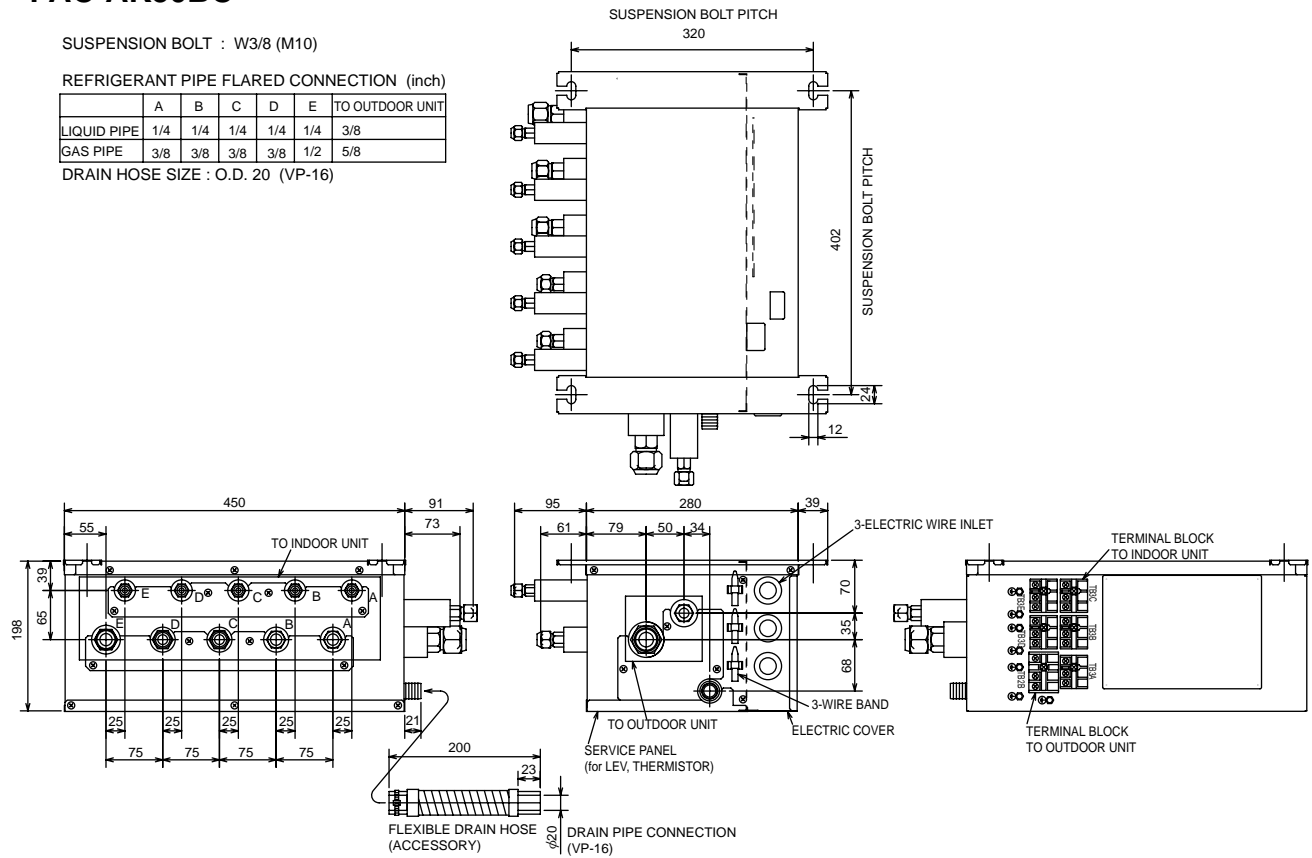
unit : mm

SUSPENSION BOLT : W3/8 (M10)

REFRIGERANT PIPE FLARED CONNECTION (inch)

	A	B	C	D	E	TO OUTDOOR UNIT
LIQUID PIPE	1/4	1/4	1/4	1/4	1/4	3/8
GAS PIPE	3/8	3/8	3/8	3/8	1/2	5/8

DRAIN HOSE SIZE : O.D. 20 (VP-16)



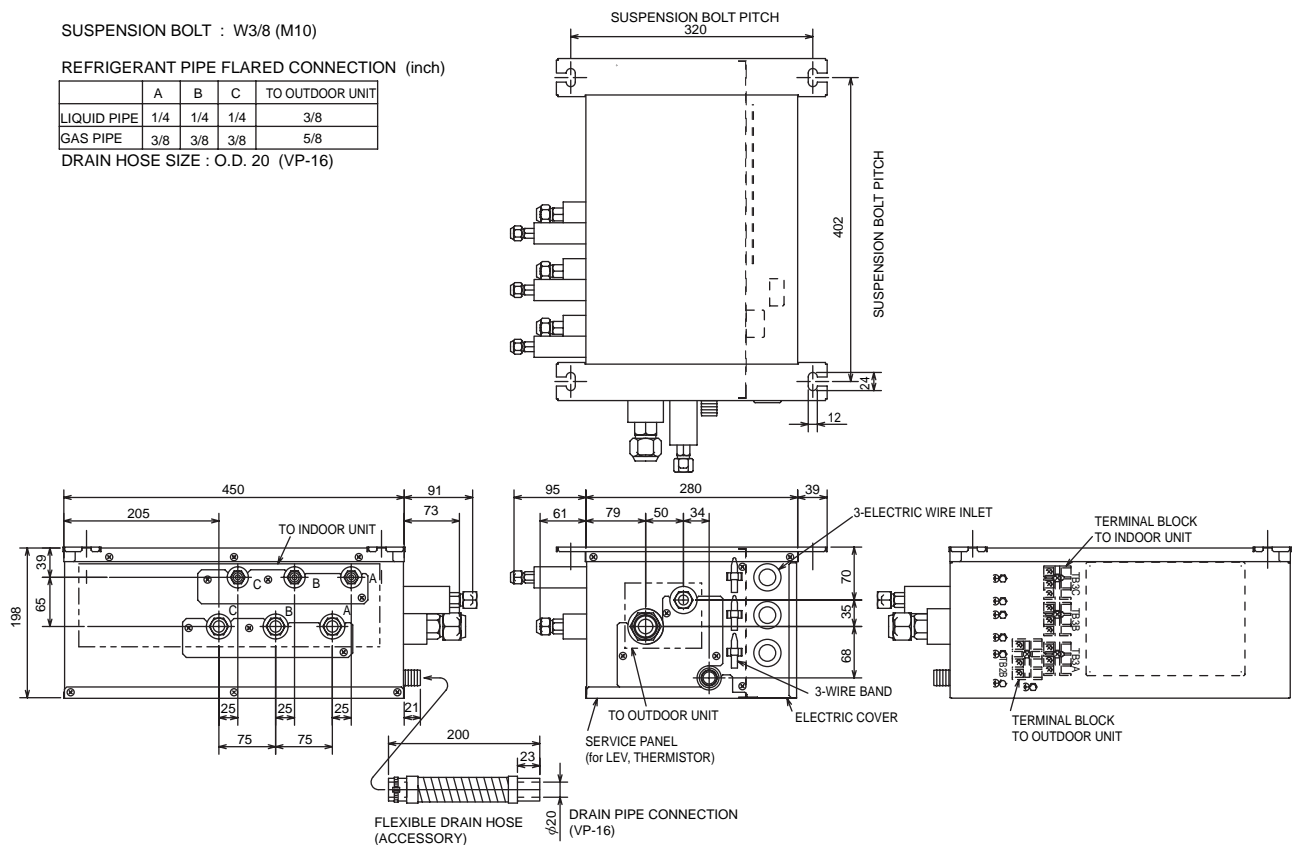
PAC-AK30BC

SUSPENSION BOLT : W3/8 (M10)

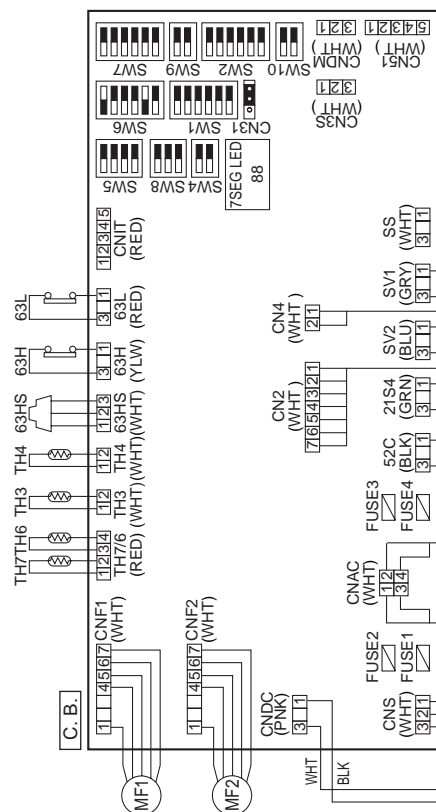
REFRIGERANT PIPE FLARED CONNECTION (inch)

	A	B	C	TO OUTDOOR UNIT
LIQUID PIPE	1/4	1/4	1/4	3/8
GAS PIPE	3/8	3/8	3/8	5/8

DRAIN HOSE SIZE : O.D. 20 (VP-16)



7-1. OUTDOOR UNIT MXZ-8A140VA



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block (Power Supply, Branch)	SC - R / S	Screw Type Terminal (L / N - Phase)	SW6	Switch (Model Select)
MC	Motor for Compressor	SC - P1, P2	Screw Type Terminal (DC Voltage)	SW7	Switch (Function Setup)
MF1, MF2	Fan Motors	SC - N1, N2	Screw Type Terminal (DC Voltage)	SW8	Switch
21S4	Solenoid Valve (Four-Way Valve)	CN2 ~ 5	Connector	SW9	Switch (Function for option)
SV1	Solenoid Valve (Hot Gas Bypass)	CNDC	Connector	SW10	Switch (Function for option)
SV2	Solenoid Valve (Returning oil Bypass)	CNAF	Connector	CN31	Connector
63HS	High pressure sensor	IGBT	Converter, Inverter	LED	Light Emitting Diodes (Operation Inspection Indicators)
63L	Low pressure sensor	N, F	Noise Filter Circuit Board	CNAC	Connector
TH3	Thermistor (Outdoor Pipe)	LI / LO	Connection Lead (L - Phase)	CNDC	Connector
TH4	Thermistor (Discharge)	NI / NO	Connection Lead (N - Phase)	CNS	Connector
TH6	Thermistor (Outdoor - Phase Pipe)	CNAC1 / 2	Connector	CNF1	Connector
TH7	Thermistor (Outdoor)	CN5	Connector	CNF2	Connector
TH8	Thermistor (Heatsink)	C, B	Controller Circuit Board	SV1	Connector
DCL	Reactor	FUSE1 ~ 4	Fuse (6.3A)	SV2	Connector
RS	52C Relay	SW1	Switch (Forced Defrost, Error History Record Reset)	CN3S	Connector (Connection for Option)
ACTM	Rush Current Protect Resistor	SW2	Switch (Self Diagnosis Switch)	CNDM	Connector (Connected for Option Contact Input)
CE	Active Filter Module	SW4	Switch (Test Operation)	CN51	Connector (Connection for Option)
P.B.	Main Smoothing Capacitor	SW5	Switch (Function Switch)	CN1T	Connector (Connection for Option)
U / V / W	Power Circuit Board				
	Connection Terminal (U / V / W - Phase)				

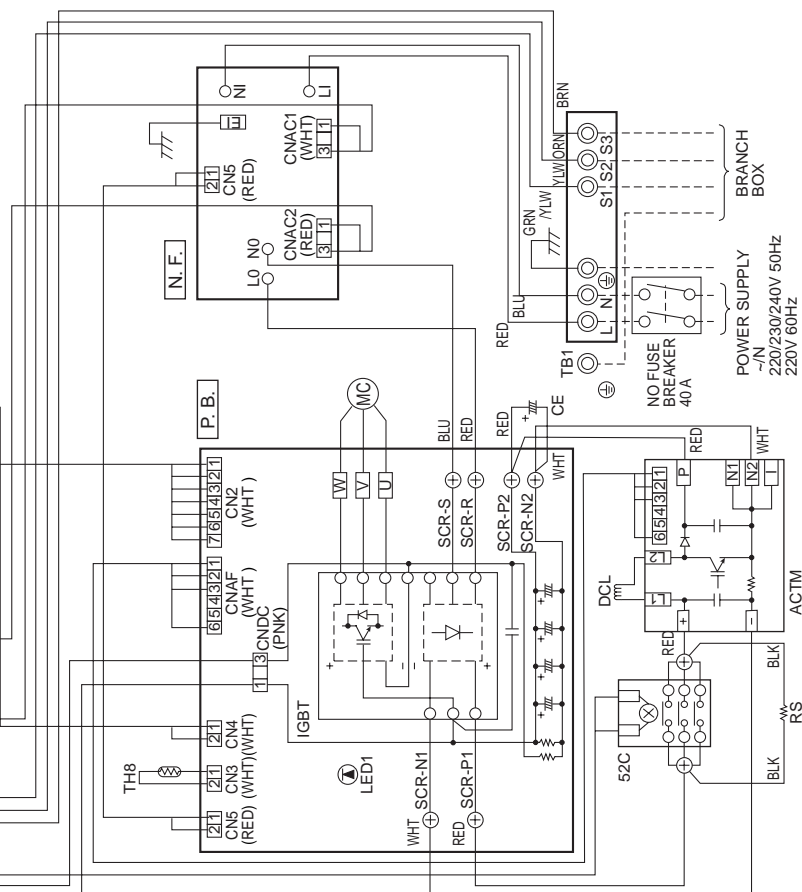
Operation / Inspection Display

LED on the controller board display the operation and inspection status as follows.
If LED does not light, it indicates that no power is supplied to the board:

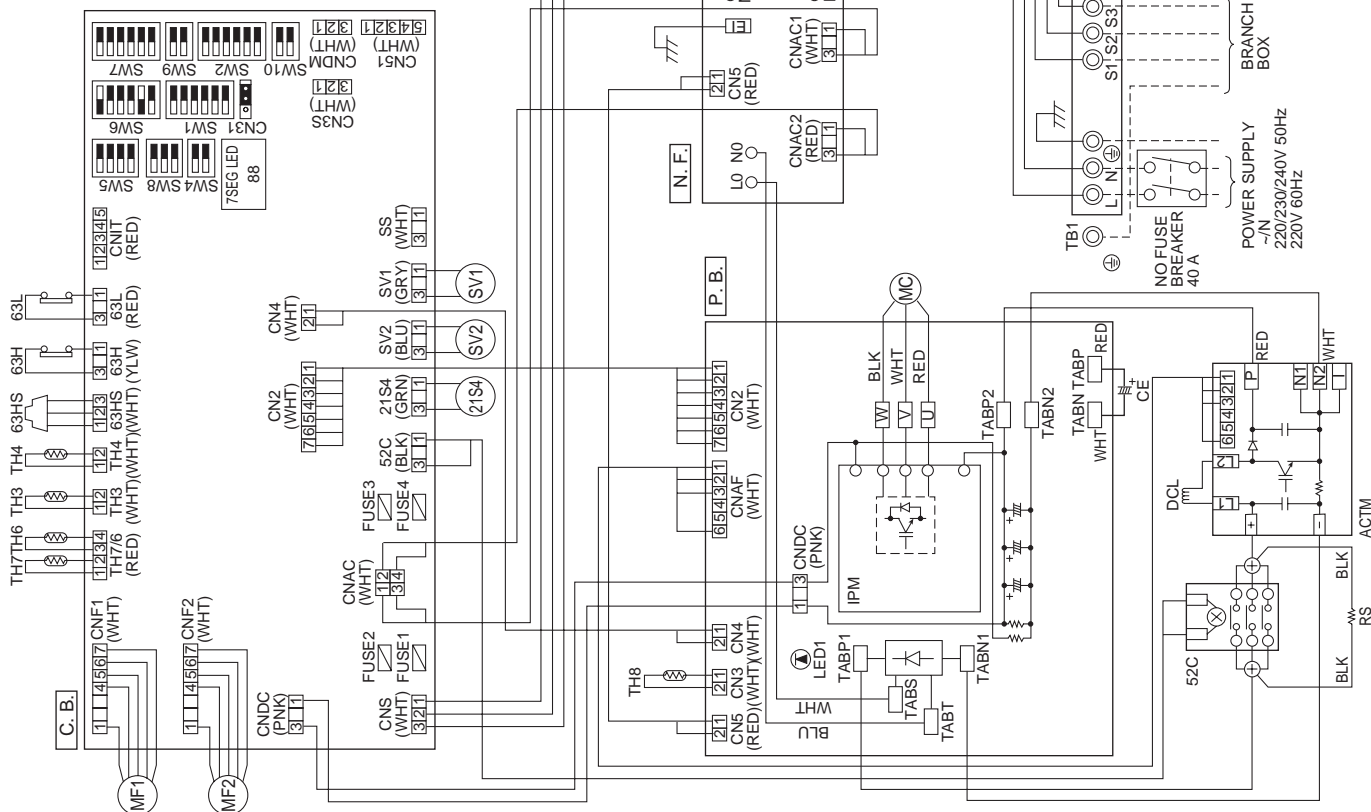
Power turned on	Details	Code
Normal status		Operation status display, such as C5, H7
Faulty status (blinking)	Connector (63H) open, connector (63L) open	F3
	At least 2 connectors open	F9
	Incorrect wiring in indoor / outdoor unit connection	EA, EB, EC
	Indoor / outdoor unit communication error	E6-E9
	Remote controller communication error	E0, E3-E5
	Combination error, undefined error	EE, EF
	Serial communication error	Ed
	Discharge temperature fault	U2
	Low-discharge superheating fault: Erroneous connection of refrigerant pipes or the connecting wires	U7
	High pressure fault (63H operates)	U1
	Low pressure fault (63L operates)	UL
	Abnormality of power modules	U6
	Compressor overcurrent shutoff (Start up locked)	UF
	Current sensor fault (P.B.)	UH
	Compressor overcurrent shutoff fault	UP
	Discharge pipe/compressor thermistor (TH4) open or short-circuit	U3
	Outdoor unit thermistors (TH3, TH6, TH7, and TH8), 63HS, and branch box thermistors open or short-circuit	U4
	Heatsink temperature fault	U5
	Abnormality in outdoor fan motor	U8
	Voltage fault, current sensor fault (N. F.)	U9
	Forced compressor stop (Overlap malfunction of drain pump in indoor unit and linear expansion valve in branch box)	PA

Cautions when Servicing

- ⚠ WARNING: When the main supply is turned off, the voltage [340 V] in the main capacitor will drop to 20 V in approx.2 minutes (input voltage : 240 V). When servicing, make sure that LED on the outdoor circuit board goes out, and then wait for at least 1 minute.
- Components other than the outdoor board may be faulty : Check and take corrective action, referring to the service manual.
- Do not replace the outdoor board without checking.



MXZ-8A140VA₁ MXZ-8A140VA₂



SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TR1	Terminal Block (Power Supply, Branch)	TAB - S / T	Terminal (L / N - Phase)	SW6	Switch (Model Select)
MC	Motor for Compressor	TAB-PP1/P2	Terminal (DC Voltage)	SW7	Switch (Function Setup)
MF1, MF2	Fan Motors	TAB-N1/N2	Terminal (DC Voltage)	SW8	Switch
21S4	Solenoid Valve (Four-Way Valve)	CN2 - 5	Connector	SW9	Switch (Function for option)
SV1	Solenoid Valve (Hot Gas Bypass)	CN2C	Connector	SW10	Switch (Function for option)
SV2	Solenoid Valve (Returning Oil Bypass)	CN4F	Connector	CN31	Connector
63HS	High pressure sensor	IPM	Inverter	LED	Light Emitting Diodes (Operation Inspection Indicators)
63H	High pressure switch	LED1	Light Emitting Diodes (Inverter Control Status)	CNAC	Connector
63L	Low pressure switch	N.F.	Noise Filter Circuit Board	CNDC	Connector
TH3	Thermistor (Outdoor Pipe)	LI / LO	Connection Lead (L - Phase)	CNS	Connector
TH4	Thermistor (Discharge)	NI / NO	Connection Lead (N - Phase)	CNF1	Connector
TH6	Thermistor (Outdoor - Phase Pipe)	CNAC1 / 2	Connector	CNF2	Connector
TH7	Thermistor (Outdoor)	CN5	Connector	SS	Connector (Connection for Option)
TH8	Thermistor (Heatsink)	C.B.	Controller Circuit Board	SV1	Connector
DCL	Reactor	FUSE1 - 4	Fuse (6.3A)	SV2	Connector
52C	52C Relay	SW1	Switch (Forced Defrost, Error History Record Reset)	CN3S	Connector (Connection for Option)
RS	Rush Current Protect Resistor	SW2	Switch (Self Diagnosis Switch)	CNDM	Connector (Contact Input)
ACTM	Active Filter Module	SW4	Switch (Test Operation)	CN51	Connector (Connection for Option)
CE	Main Smoothing Capacitor	SW5	Switch (Function Switch)	CNIT	Connector (Connection for Option)
P.B.	Power Circuit Board				
U / V / W	Connection Terminal (U / V / W - Phase)				

Operation / Inspection Display

LED on the controller board display the operation and inspection status as follows.
If LED does not light, it indicates that no power is supplied to the board.

Details	Code
Power turned on	→ ← (blinks)
Normal status	Operation status display, such as C5, H7
Faulty status (blinking)	F3
63L connector (red) is open.	F5
63H connector (yellow) is open.	F9
2 connectors (63H/63L) are open.	E8
Branch box/outdoor communication error (Signal receiving error) (Outdoor unit)	E9
Indoor/branch box communication error (Signal receiving error) (Branch box)	E9
Branch box/outdoor communication error (Transmitting error) (Outdoor unit)	E9
Indoor/branch box communication error (Transmitting error) (Branch box)	E9
Miswiring of indoor-branch box / branch box-outdoor unit connecting wire.	E9
Too many indoor units / branch box are in the system.	E9
Miswiring of indoor-branch box/branch box-outdoor unit connecting wire (converse wiring or disconnection)	E9
Startup time over	E9
Communication error except for outdoor unit	E9
Combination error, undefined error	E9
Serial communication error	E9
Discharge temperature fault	E9
Low-discharge superheating fault, Erroneous connection of refrigerant pipes or the connecting wires	E9
High pressure fault (63H operates)	E9
Low pressure fault (63L operates)	E9
Abnormality of power modules	E9
Compressor overcurrent shutdown (Start up locked)	E9
Current sensor fault (P. B.)	E9
Compressor overcurrent shutdown fault	E9
Discharge pipe/compressor thermistor (TH4) open or short-circuit	E9
Outdoor unit thermistors (TH3, TH6, TH7, and TH8), 63HS, and branch box thermistors open or short-circuit	E9
Heatsink temperature fault	E9
Abnormality in outdoor fan motor	E9
Voltage fault, current sensor fault (N. F.)	E9
Forced compressor stop	E9
Overlap malfunction of drain pump in indoor unit and linear expansion valve in branch box	E9

Cautions when Servicing

- ⚠ WARNING: When the main supply is turned off, the voltage(340 V)in the main capacitor will drop to 20 V in approx.2 minutes (input voltage : 240 V). When servicing, make sure that LED on the outdoor circuit board goes out, and then wait for at least 1 minute.
- Components other than the outdoor board may be faulty : Check and take corrective action, referring to the service manual.
- Do not replace the outdoor board without checking.

MXZ-8A140VA₃

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block (Power Supply, Branch Box)	P.B.	Power Circuit Board	SW5	Switch (Function Switch)
MC	Motor for Compressor	TABU / V / W	Connection Terminal (U / V / W - Phase)	SW6	Switch (Model Select)
MF1, MF2	Fan Motors	TABS / T	Connection Terminal (L / N - Phase)	SW7	Switch (Function Setup)
21S4	Solenoid Valve (Four-Way Valve)	TABP1/P2/P	Connection Terminal (DC Voltage)	SW8	Switch (Function Setup)
63H	High Pressure Switch	TABN1/N2/N	Connection Terminal (DC Voltage)	SW9	Switch (Function Setup)
DS2, DS3	Diode Bridge	IPM	Power Module	CN31	Connector
63HS	High Pressure Sensor	N.F.	Noise Filter Circuit Board	CN51	Connector (Connection for Option)
SV1, SV2	Solenoid Valve (Bypass Valve)	L / LO	Connection Terminal (L - Phase)	SS	Connector (Connection for Option)
TH3	Thermistor (Outdoor Pipe)	N / NO	Connection Terminal (N - Phase)	CN3S	Connector (Connection for Option)
TH4	Thermistor (Discharge)	E1, E2	Connection Terminal (Ground)	CN1T	Connector (Connection for Option)
TH6	Thermistor (Outdoor 2 - Phase Pipe)	52C	52C Relay	CNDM	Connector (Connection for Option)
TH7	Thermistor (Radiator Panel)	C.B.	Controller Circuit Board	LED	Light Emitting Diode (Operation Inspection Indicators)
TH8	Thermistor (Radiator Panel)	SW1	Switch (Forced Defrost, Defect History Record Reset)	F1 ~ F4	Fuse (T6.3AL250V)
DCL	Reactor	SW2	Switch (Self Diagnosis Switch)	X51 ~ X55	Relay
ACTM	Active Filter Module				
CB	Main Smoothing Capacitor	SW4	Switch (Test Operation)		

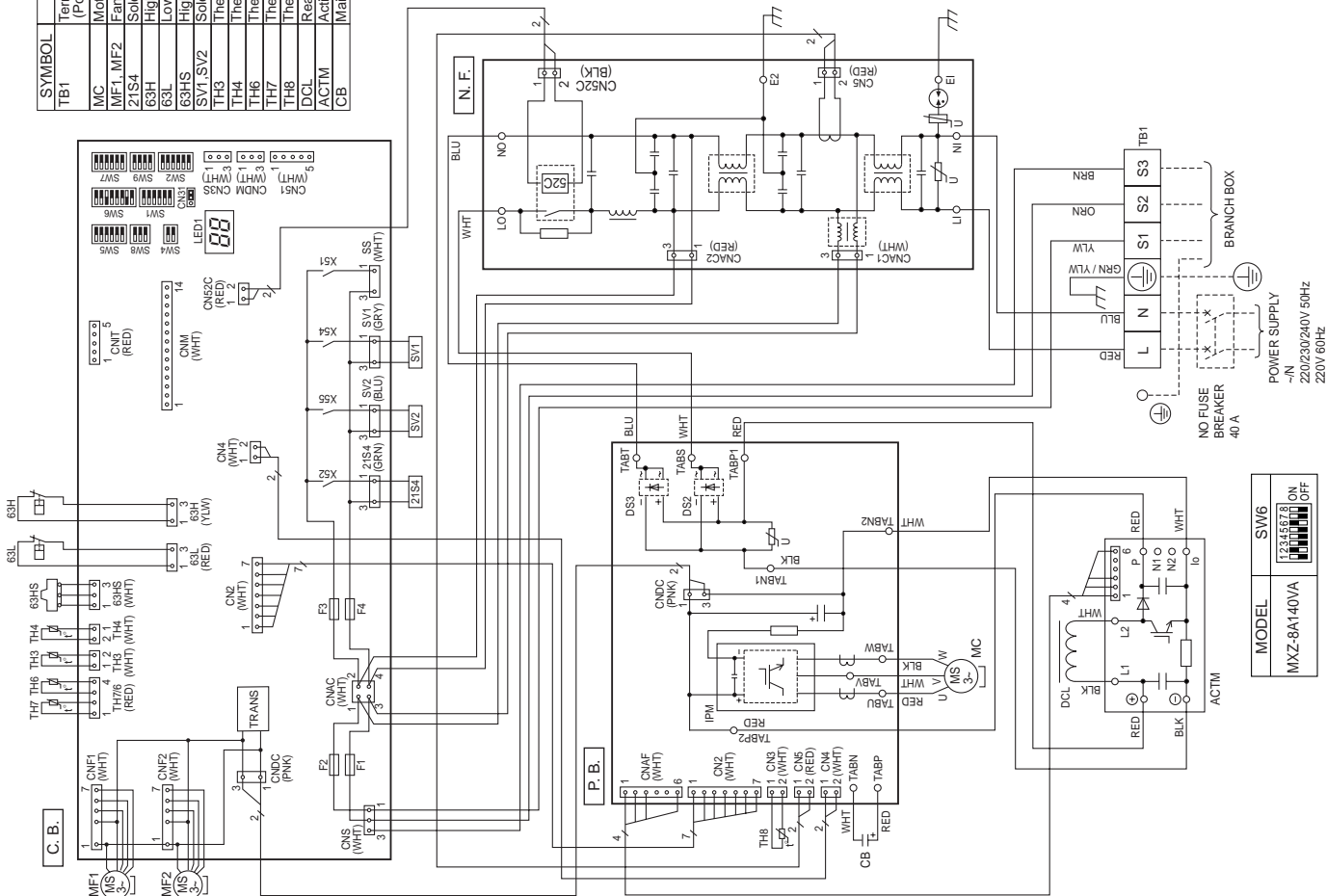
Operation / Inspection Display

LED on the controller board display the operation and inspection status as follows.
If LED does not light, it indicates that no power is supplied to the board:

Power turned on	Details	Code
Normal status		— ↔ — (blinks)
Faulty status (blinking)		Operation status display, such as C5, H7
	63L connector (red) is open.	F3
	63H connector (yellow) is open.	F5
	2 connectors (63H/63L) are open.	F9
	Branch box/outdoor communication error (Signal receiving error)(Outdoor unit)	E8
	Indoor/branch box communication error (Signal receiving error)(Branch box)	E9
	Branch box/outdoor communication error (Transmitting error)(Outdoor unit)	E9
	Indoor/branch box communication error (Transmitting error)(Branch box)	E9
	• Miswiring of indoor-branch box / branch box-outdoor unit connecting wire.	EA
	• Too many indoor units / branch box are in the system.	EA
	Miswiring of indoor-branch box/branch box-outdoor unit connecting wire (converse wiring or disconnection)	Eb
	Startup time over	Ec
	Communication error except for outdoor unit	E0 - E7
	Combination error, undefined error	EE, EF
	Serial communication error	Ed
	Discharge temperature fault	U2
	Low-discharge superheating fault, Erroneous connection of refrigerant pipes or the connecting wires	U7
	High pressure fault (63H operates)	U1
	Low pressure fault (63L operates)	UL
	Abnormality of power modules	U6
	Compressor over current shutdown (Start up locked)	UF
	Current sensor fault (P.B.)	UH
	Compressor overcurrent shutdown fault	UP
	Discharge pipe/compressor thermistor (TH4) open or short-circuit	U3
	Outdoor unit thermistors (TH3, TH6, TH7, and TH8), 63HS, and branch box thermistors open or short-circuit	U4
	Heatsink temperature fault	U5
	Abnormality in outdoor fan motor	U8
	Voltage fault, current sensor fault (N.F.)	U9
	Forced compressor stop (Overlap malfunction of drain pump in indoor unit and linear expansion valve in branch box)	PA

Cautions when Servicing

- ⚠ **WARNING:** When the main supply is turned off, the voltage (340 V) in the main capacitor will drop to 20 V in approx. 2 minutes (input voltage : 240 V). When servicing, make sure that LED on the outdoor circuit board goes out, and then wait for at least 1 minute.
- Components other than the outdoor board may be faulty : Check and take corrective action, referring to the service manual.
Do not replace the outdoor board without checking.





7-2. BRANCH BOX : PAC-AK50BC PAC-AK30BC

Note : " PAC - AK30 · 50BC " is only for R410A.

SYMBOL	NAME
B.C	Branch box controller board
F1 <B.C>	Fuse 250V 6.3A
SW1<B.C>	Switch for service
CNM<B.C>	Connector
LED1~5< B.C>	Light emitting diode
LEV-A~E	Linear expansion valve
TH-A~E	Thermistor Pipe temp.detection / Gas (0 °C / 15kΩ, 25 °C / 5.4kΩ)
TB2B	Terminal block / To outdoor unit
TB3A	Terminal block / To indoor unit - A
TB3B	Terminal block / To indoor unit - B
TB3C	Terminal block / To indoor unit - C
TB3D	Terminal block / To indoor unit - D
TB3E	Terminal block / To indoor unit - E

Note

1. At servicing for outdoor unit, always follow the wiring diagram of Outdoor unit.
2. Symbols used in wiring diagram above are,  : terminal block,  : connector.
(Combination of indoor units)

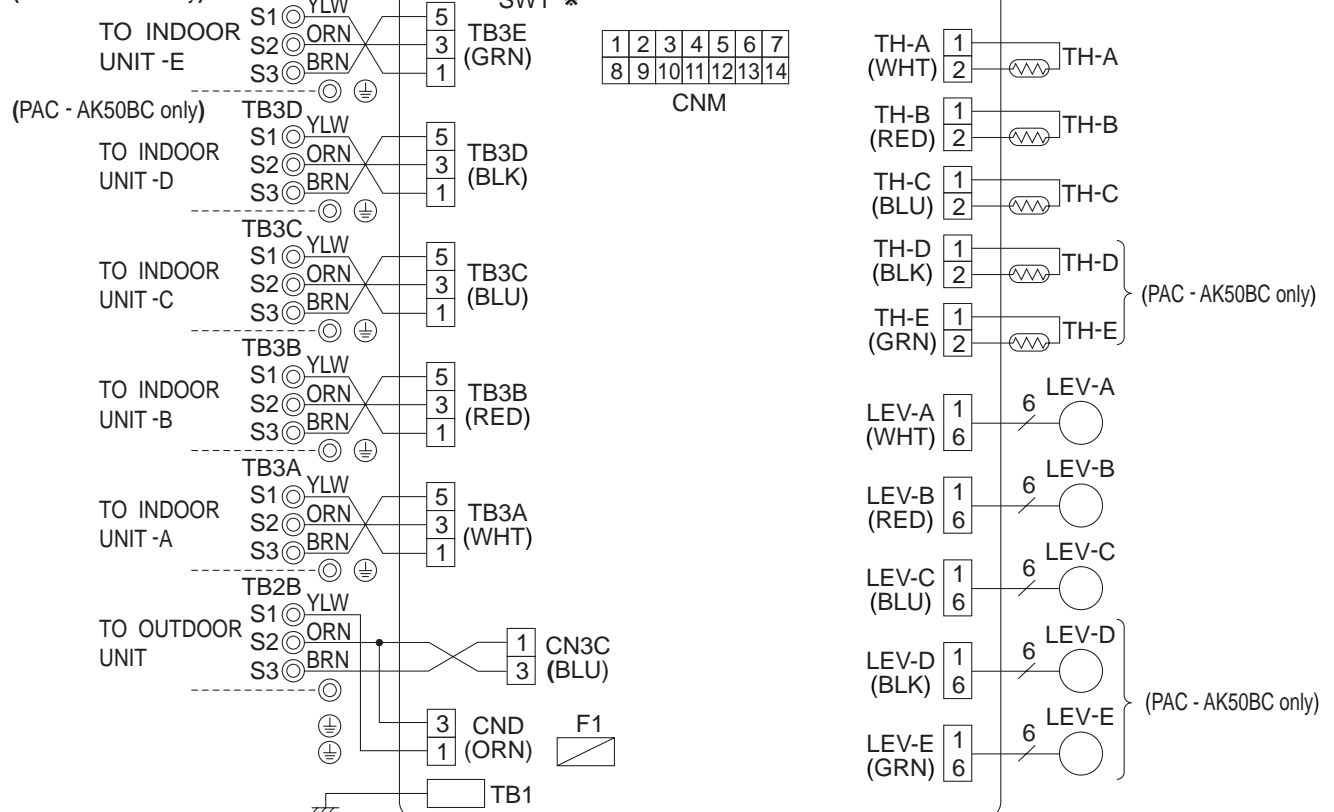
Fill out the location of combined indoor units with model name in each blank below because it is necessary for service and maintenance.

Indoor unit - A	Indoor unit - B	Indoor unit - C	Indoor unit - D	Indoor unit - E

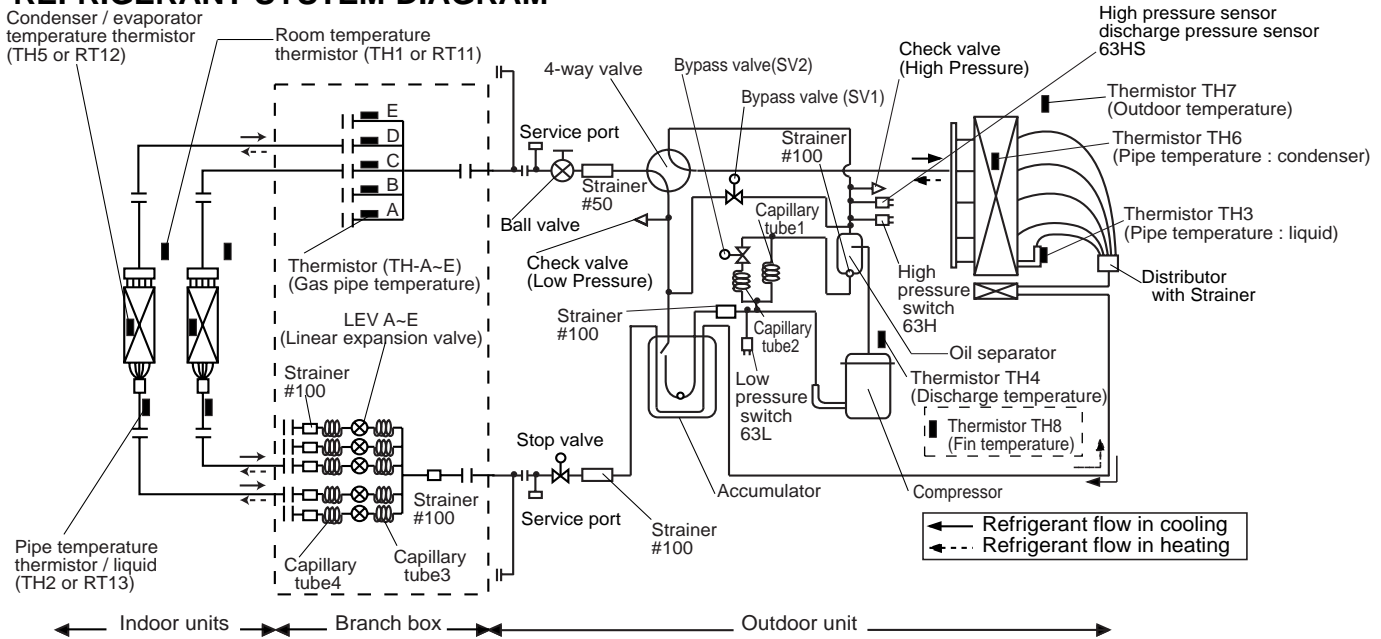
*Setup of SW1

Make it the same setup as former one when exchanging PCB.

(PAC - AK50BC only)



REFRIGERANT SYSTEM DIAGRAM



unit : mm

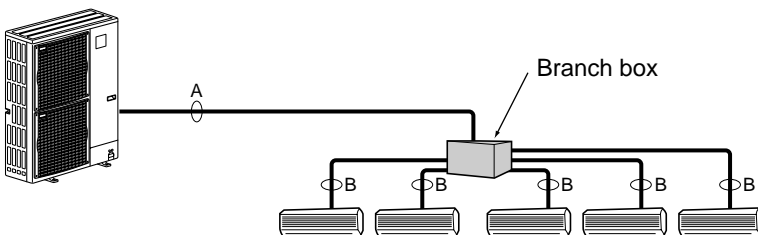
		Capillary tube 1 (For return of oil from oil separator)	Capillary tube 2 (For SV2)	Capillary tube 3 ahead of LEV (in cooling mode)	Capillary tube 4 behind LEV (in cooling mode)
Outdoor unit	MXZ-8A140VA	$\phi 2.5 \times \phi 0.8 \times L1000$	$\phi 4 \times \phi 2.4 \times L250$	—	—
	MXZ-8A140VA ₁				
	MXZ-8A140VA ₂				
	MXZ-8A140VA ₃				
Branch box	PAC-AK50BC	—	—	$(\phi 4 \times \phi 2.4 \times L140) \times 5$	$(\phi 4 \times \phi 2.2 \times L130) \times 5$
	PAC-AK30BC	—	—	$(\phi 4 \times \phi 2.4 \times L140) \times 3$	$(\phi 4 \times \phi 2.2 \times L130) \times 3$

Piping connection size

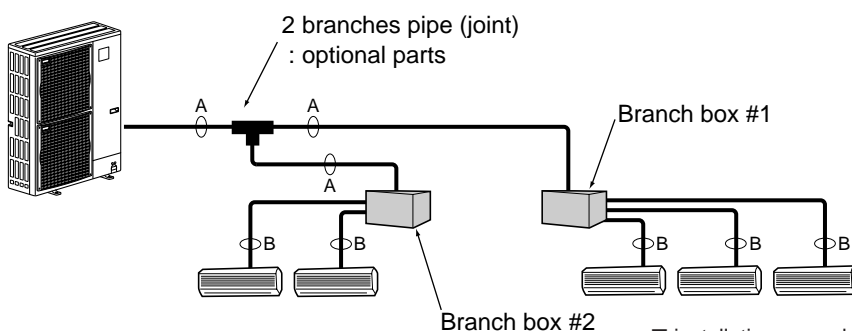
	A	B
Liquid (mm)	$\phi 9.52$	The pipe connection size differs according to the type and capacity of indoor units. Match the piping connection size of branch box with indoor unit. If the piping connection size of branch box does not match the piping connection size of indoor unit, use optional different-diameter (deformed) joints to the branch box side. (Connect deformed joint directly to the branch box side.)
Gas (mm)	$\phi 15.88$	

■ In case of using 1-branch box

Flare connection employed (No. brazing)



■ In case of using 2-branch boxes



■ installation procedure (2 branch pipe (joint))

Refer to the installation manuals of MSDD-50AR-E and MSDD-50BR-E.

■ Pipe size (Branch box-Indoor unit) *Case of M series or S series Indoor unit

Indoor unit type	(kW)	22	25	35	50	60	71	80
Pipe size (mm)	Liquid	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35	φ9.52	φ9.52
	Gas	φ9.52	φ9.52	φ9.52	φ12.7	φ15.88 *	φ15.88	φ15.88

When using 60 type indoor unit of MEXZ series, use the flare nut in the indoor unit accessory for the gas side connecting of indoor unit.

Do not use the flare nut (gas side) attached to the indoor unit. If it is used, a gas leakage or even a pipe extraction may occur.

■ Pipe size (Branch box-Indoor unit) *Case of P series Indoor unit

Indoor unit type	(kW)	35	50	60	71
Pipe size (mm)	Liquid	φ6.35	φ6.35	φ9.52	φ9.52
	Gas	φ12.7	φ12.7	φ15.88	φ15.88

When using 35, 50 type indoor unit of P series, use the flare nut (for R410A) attached to the indoor unit.

Do not use the flare nut (for R407C) in the indoor unit accessory. If it is used, a gas leakage or even a pipe extraction may occur.

(1) Valve size for outdoor unit

For liquid	φ9.52mm
For gas	φ15.88mm

(2) Valve size for branch unit

* [A] UNIT	Liquid pipe	φ6.35 mm
	Gas pipe	φ9.52 mm
* [B] UNIT	Liquid pipe	φ6.35 mm
	Gas pipe	φ9.52 mm
* [C] UNIT	Liquid pipe	φ6.35 mm
	Gas pipe	φ9.52 mm
[D] UNIT	Liquid pipe	φ6.35 mm
	Gas pipe	φ9.52 mm
[E] UNIT	Liquid pipe	φ6.35 mm
	Gas pipe	φ12.7 mm

* 3- branch type is only for [A], [B], and [C] unit.

Different-diameter joint (optional parts) (Fig.7-1)

Model name	Connected pipes diameter	Diameter A	Diameter B
	mm	mm	mm
MAC-A454JP	φ9.52 → φ12.7	φ9.52	φ12.7
MAC-A455JP	φ12.7 → φ9.52	φ12.7	φ9.52
MAC-A456JP	φ12.7 → φ15.88	φ12.7	φ15.88
PAC-493PI	φ6.35 → φ9.52	φ6.35	φ9.52
PAC-SG76RJ-E	φ9.52 → φ15.88	φ9.52	φ15.88

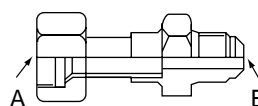


Fig.7-1

Conversion formula

1/4 inch	φ6.35mm
3/8 inch	φ9.52mm
1/2 inch	φ12.7mm
5/8 inch	φ15.88mm
3/4 inch	φ19.05mm

9-1. TROUBLESHOOTING

<Error code display by self-diagnosis and actions to be taken for service (summary)>

Present and past error codes are logged and displayed on the wired remote controller and control board of outdoor unit.

Actions to be taken for service, which depends on whether or not the trouble is reoccurring at service, are summarized in the table below. Check the contents below before investigating details.

Unit conditions at service	Error code	Actions to be taken for service (summary)
The trouble has recurred.	Displayed	Judge what is wrong and take a corrective action according to "9-3. SELF-DIAGNOSIS ACTION TABLE".
	Not displayed	Conduct trouble shooting and ascertain the cause of the trouble according to "9-4. TROUBLESHOOTING BY INFERIOR PHENOMENA".
The trouble is not reoccurring.	Logged	①Consider the temporary defects such as the work of protection devices in the refrigerant circuit including compressor, poor connection of wiring, noise and etc. Re-check the symptom, and check the installation environment, refrigerant amount, weather when the trouble occurred, matters related to wiring and etc. ②Reset error code logs and restart the unit after finishing service. ③There is no abnormality concerning of parts such as electrical component, controller board, remote controller and etc.
	Not logged	①Re-check the abnormal symptom. ②Conduct trouble shooting and ascertain the cause of the trouble according to "9-4. TROUBLESHOOTING BY INFERIOR PHENOMENA". ③Continue to operate unit for the time being if the cause is not ascertained. ④There is no abnormality concerning of parts such as electrical component, controller board, remote controller and etc.

9-2. CHECK POINTS FOR TEST RUN

9-2-1. Before test run

- Turn on the main power switch more than 12 hours before starting operation. Starting operation just after turning on the power switch can severely damage the internal parts. Keep the main power switch turned on during the operation season.
- After completing installation and the wiring and piping of the indoor and outdoor units, check for refrigerant leakage, looseness in the power supply or control wiring, wrong polarity, and no disconnection of one phase in the supply.
- Use a 500-volt M-ohm tester to check that the resistance between the power supply terminals and ground is at least 1 MΩ.
- Do not carry out this test on the control wiring (low voltage circuit) terminals.

⚠ **Warning: Do not use the air conditioner if the insulation resistance is less than 1 MΩ.**

Insulation resistance

After installation or after the power source to the unit has been cut for an extended period, the insulation resistance will drop below 1 MΩ due to refrigerant accumulating in the compressor. This is not a malfunction. Perform the following procedures.

1. Remove the wires from the compressor and measure the insulation resistance of the compressor.
2. If the insulation resistance is below 1 MΩ, the compressor is faulty or the resistance dropped due to the accumulation of refrigerant in the compressor.
3. After connecting the wires to the compressor, the compressor will start to warm up after power is supplied. After supplying power for the times indicated below, measure the insulation resistance again.
 - The insulation resistance drops due to accumulation of refrigerant in the compressor. The resistance will rise above 1MΩ after the compressor is warmed up for 4 hours. (The time necessary to warm up the compressor varies according to atmospheric conditions and refrigerant accumulation.)
 - To operate the compressor with refrigerant accumulated in the compressor, the compressor must be warmed up at least 12 hours to prevent breakdown.
4. If the insulation resistance rises above 1 MΩ, the compressor is not faulty.

⚠ **Caution:**

- **The compressor will not operate unless the power supply phase connection is correct.**
- **Turn on the power at least 12 hours before starting operation.**

Starting operation immediately after turning on the main power switch can result in severe damage to internal parts. Keep the power switch turned on during the operational season.

● **The followings must be checked as well.**

- The outdoor unit is not faulty. LED on the control board of the outdoor unit flashes when the outdoor unit is faulty.
- Both the gas and liquid stop valves are completely open.

9-2-2. Test run

(1) Using remote controller

Refer to the indoor unit installation manual.

- Be sure to perform the test run for each indoor unit. Make sure each indoor unit operates properly following the installation manual attached to the unit.
- If you perform the test run for all indoor units at once, you cannot detect any erroneous connection, if any, of the refrigerant pipes and the connecting wires.
- * The compressor operation is not available for 3 minutes at least after the power is supplied.
- The compressor can emit noise just after turn on the power supply or in case of low outside air temperature.

About the restart protective mechanism

Once the compressor stops, the restart preventive device operates so the compressor will not operate for 3 minutes to protect the air conditioner.

(2) Using SW4 in outdoor unit

In case of the test run from outdoor unit, all indoor units operate. Therefore, you cannot detect any erroneous connection of refrigerant pipes and the connecting wires. If it aims at detection of any erroneous connection, be sure to carry out the test run from remote controller with reference to "(1) Using remote controller."

SW4-1	ON	Cooling operation
SW4-2	OFF	
SW4-1	ON	Heating operation
SW4-2	ON	

※ After performing the test run, set SW4-1 to OFF.

- A few seconds after the compressor starts, a clanging noise may be heard from the inside of the outdoor unit. The noise is coming from the check valve due to the small difference in pressure in the pipes. The unit is not faulty.

The test run operation mode cannot be changed by DIP switch SW4-2 during the test run. To change the test run operation mode during the test run, stop the test run by DIP switch SW4-1. After changing the test run operation mode, resume the test run by switch SW4-1.

When a test run is started by "Using SW4 in outdoor unit", even if it carries out stop instructions by remote controller, outdoor unit does not stop. A test run is not ended. In this case, please set SW4 in outdoor unit to off.

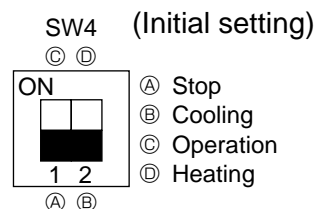
- After power is supplied or after an operation stop for a while, a small clicking noise may be heard from the inside of the branch box. The electronic expansion valve is opening and closing. The unit is not faulty.

NOTE: Be sure to wait at least 3 minutes after turning on the power supply before setting SW4-1 and SW4-2.
If the DIP switches are set before 3 minutes has elapsed, the test run may not start.

9-2-3. Test run by outdoor unit SW4

The setting of test run (ON/OFF) and its operation mode (cooling/heating) can be set by SW4 on the controller board of outdoor unit.

- ① Set operation mode (cooling or heating) by SW4-2.
- ② Start test run by setting SW4-1 to ON (\uparrow) with the indicated operation mode of SW4-2.
- ③ Finish test run by setting SW4-1 to OFF (\downarrow).
 - Operation mode cannot be changed by SW4-2 during test run.
 - Stop test run to change operation mode by SW4-1, and restart test run by SW4-1 after the mode is changed.
 - Test run automatically stops 2 hours later by 2-hour OFF timer function.
 - Test run can be performed by the remote controller.
 - The remote controller display of test run by outdoor unit is the same as that of test run by remote controller.
 - If test run is set with the outdoor unit, the test run is performed for all indoor units.
 - The remote controller operation becomes unavailable once the test run is set with the outdoor unit.



During the test run set with the outdoor unit, operation on/off or operation mode change cannot be performed by the remote controller, and the operation relating to the test run which is made with the outdoor unit will be prior to any other commands from the remote controller. Set the SW4-1 to OFF (\downarrow) to finish test run.
Emergency operation is not available for this model.

9-3. SELF-DIAGNOSIS ACTION TABLE

<Abnormalities detected when the power is put on>

(Note 1) Refer to indoor unit section for code P and code E.

Error Code	Abnormal point and detection method	Case	Judgment and action
None	—	<p>① No voltage is supplied to terminal block(TB1) of outdoor unit. a) Power supply breaker is turned off. b) Contact failure or disconnection of power supply terminal c) Open phase (L or N phase)</p> <p>② Electric power is not charged to power supply terminal of outdoor power circuit board. a) Contact failure of power supply terminal b) Open phase on the outdoor power circuit board Disconnection of connector SC-R or SC-S</p> <p>③ Electric power is not supplied to outdoor controller circuit board. a) Disconnection of connector (CNDC)</p> <p>④ Disconnection of reactor (DCL)</p> <p>⑤ Disconnection of outdoor noise filter circuit board or parts failure in outdoor noise filter circuit board</p> <p>⑥ Defective outdoor power circuit board</p> <p>⑦ Defective outdoor controller circuit board</p>	<p>① Check following items. a) Power supply breaker b) Connection of power supply terminal block. (TB1) c) Connection of power supply terminal block. (TB1)</p> <p>② Check following items. a) Connection of power supply terminal block. (TB1) b) Connection of terminal on outdoor power circuit board. Disconnection of connector SC-R or SC-S Refer to 9-7.</p> <p>③ Check connection of the connector (CNDC) on the outdoor controller circuit board. Check connection of the connector, CNDC on the outdoor power circuit board. Refer to 9-7.</p> <p>④ Check connection of reactor. (DCL) Check connection of "L1" and "L2" on the active filter module.(ACTM)</p> <p>⑤ a) Check connection of outdoor noise filter circuit board. b) Replace outdoor noise filter circuit board. Refer to 9-7.</p> <p>⑥ Replace outdoor power circuit board.</p> <p>⑦ Replace controller board (When items above are checked but the units cannot be repaired.)</p>
F3 (5202)	<p>63L connector open Abnormal if 63L connector circuit is open for 3 minutes continuously after power supply 63L: Low-pressure switch</p>	<p>① Disconnection or contact failure of 63L connector on outdoor controller circuit board</p> <p>② Disconnection or contact failure of 63L</p> <p>③ 63L is working due to refrigerant leakage or defective parts.</p> <p>④ Defective outdoor controller circuit board</p>	<p>① Check connection of 63L connector on outdoor controller circuit board. Refer to 9-7.</p> <p>② Check the 63L side of connecting wire.</p> <p>③ Check refrigerant pressure. Charge additional refrigerant. Check continuity by tester. Replace the parts if the parts are defective.</p> <p>④ Replace outdoor controller circuit board.</p>
F5 (5201)	<p>63H connector open Abnormal if 63H connector circuit is open for 3 minutes continuously after power supply 63H: High-pressure switch</p>	<p>① Disconnection or contact failure of 63H connector on outdoor controller circuit board</p> <p>② Disconnection or contact failure of 63H</p> <p>③ 63H is working due to defective parts.</p> <p>④ Defective outdoor controller circuit board</p>	<p>① Check connection of 63H connector on outdoor controller circuit board. Refer to 9-7.</p> <p>② Check the 63H side of connecting wire.</p> <p>③ Check continuity by tester. Replace the parts if the parts are defective.</p> <p>④ Replace outdoor controller circuit board.</p>
F9 (4119)	<p>2 connector open Abnormal if both 63H and 63L connector circuits are open for 3 minutes continuously after power supply 63H: High-pressure switch 63L: Low-pressure switch</p>	<p>① Disconnection or contact failure of connector (63H,63L) on outdoor controller circuit board.</p> <p>② Disconnection or contact failure of 63H, 63L</p> <p>③ 63H and 63L are working due to defective parts.</p> <p>④ Defective outdoor controller board</p>	<p>① Check connection of connector(63H,63L) on outdoor controller circuit board. Refer to 9-7.</p> <p>② Check the 63H and 63L side of connecting wire.</p> <p>③ Check continuity by tester. Replace the parts if the parts are defective.</p> <p>④ Replace outdoor controller circuit board.</p>



Error Code	Abnormal point and detection method	Case	Judgment and action
EA (6844)	Indoor-branch box/branch box-outdoor unit connector miswiring, excessive number of units 1. Outdoor/branch box controller circuit board can automatically check the number of connected indoor units. Abnormal if the number cannot be checked automatically due to miswiring of indoor-branch box/branch box-outdoor unit connecting wire and etc. after power is turned on for 4 minutes.	① Contact failure or miswiring of indoor/outdoor unit connecting wire ② Diameter or length of indoor-branch box/branch box-outdoor unit connecting wire is out of specified capacity. There are 9 or more indoor units in the system. There are 3 or more branch boxes in the system. ③ Defective transmitting receiving circuit of outdoor/branch box controller circuit board ④ Defective transmitting receiving circuit of branch box/indoor controller board ⑤ Defective branch box/indoor power board ⑥ Noise has entered into power supply or indoor-branch box /branch box-outdoor unit connecting wire.	① Check disconnection or looseness or polarity of indoor-branch box/branch box-outdoor unit connecting wire of indoor and outdoor units. ② Check diameter and length of indoor-branch box/branch box-outdoor unit connecting wire. Total wiring length: 55m (outdoor-branch box) (including wiring connecting each branch box unit and between branch box and outdoor unit) Also check if the connection order of flat cable is S1, S2, S3. If the error "EA" is detected, check the number of the indoor units and the branch box in the system. ③~⑤ Turn the power off once, and on again to check. Replace outdoor controller circuit board, branch box controller board, indoor controller board or indoor power board if abnormality occurs again. ⑥ Check transmission path, and remove the cause.
Eb (6845)	Miswiring of indoor-branch box/branch box-outdoor unit connecting wire (converse wiring or disconnection) Outdoor/branch box controller circuit board can automatically set the unit number of indoor units. Abnormal if the indoor unit number can not be set within 4 minutes after power on because of miswiring (converse wiring or disconnection) of indoor-branch box/branch box-outdoor unit connecting wire.	① Contact failure or miswiring of indoor-branch box/branch box-outdoor unit connecting wire ② Diameter or length of indoor-branch box/branch box-outdoor unit connecting wire is out of specified capacity. ④ Defective transmitting receiving circuit of outdoor/branch box controller circuit board ⑤ Defective transmitting receiving circuit of indoor/branch box controller board ⑥ Defective indoor/branch box power board ⑦ Noise has entered into power supply or indoor-branch box/branch box-outdoor unit connecting wire.	* The descriptions above, ①-⑥, are for EA, Eb and EC.
EC (6846)	Start-up time over The unit cannot finish start-up process within 4 minutes after power on.	① Contact failure of indoor-branch box/branch box-outdoor unit connecting wire ② Diameter or length of indoor-branch box/branch box-outdoor unit connecting wire is out of specified capacity. ③ Noise has entered into power supply or indoor-branch box/branch box-outdoor unit connecting wire.	

<Abnormalities detected while unit is operating>

Error Code	Abnormal point and detection method	Case	Judgment and action
U1 (1302)	<p>(1) High-pressure switch (63H) worked Abnormal if high-pressure switch 63H worked (※) during compressor operation. ※ 4.15 MPa</p> <p>63H: High-pressure switch</p> <p>(2) High pressure (High - pressure sensor 63HS detect)</p> <p>① When high-pressure pressure sensor detects 4.31MPa or more (or over 4.15MPa for 3 minutes) (1st detection) during the compressor operation, the compressor stops and restarts operation in 3 minutes.</p> <p>② When the sensor detects 4.31MPa or more (or over 4.15MPa for 3 minutes) again (2nd detection) within 30 minutes since the compressor has stopped, the compressor stops again and restarts operation in 3 minutes.</p> <p>③ When the sensor detects 4.31MPa or more (or over 4.15MPa for 3 minutes) again (3rd detection) within 30 minutes since the compressor has stopped, the compressor stops again and restarts operation in 3 minutes.</p> <p>④ When the sensor detects 4.31MPa or more (or over 4.15MPa for 3 minutes) again (4th detection) within 30 minutes after 3rd compressor stop, it stops abnormally. In this time <U1> is displayed.</p> <p>⑤ When the sensor detects 4.31MPa or more (or over 4.15MPa for 3 minutes) after 30 minutes since the compressor has stopped (1st or 2nd or 3rd time), it becomes the 1st detection or the same performance as above-mentioned ①.</p> <p>⑥ It is being delay for abnormal stop during 30 minutes since the compressor has stopped. In this time, check delay code <U1> will be displayed.</p>	<p>1) Short cycle of indoor unit</p> <p>2) Clogged filter of indoor unit</p> <p>3) Decreased airflow caused by dirt of indoor fan</p> <p>4) Dirt of indoor heat exchanger</p> <p>5) Locked indoor fan motor</p> <p>6) Malfunction of indoor fan motor</p> <p>7) Defective operation of stop valve (Not fully opened)</p> <p>8) Clogged or broken pipe</p> <p>9) Locked outdoor fan motor</p> <p>10) Malfunction of outdoor fan motor</p> <p>11) Short cycle of outdoor unit</p> <p>12) Dirt of outdoor heat exchanger</p> <p>13) Decreased airflow caused by defective inspection of outside temperature thermistor (It detects lower temperature than actual temperature.)</p> <p>14) Disconnection or contact failure of connector (63H) on outdoor controller board</p> <p>15) Disconnection or contact failure of 63H connection</p> <p>16) Defective outdoor controller board</p> <p>17) Defective action of linear expansion valve</p> <p>18) Malfunction of fan driving circuit</p> <p>19) Solenoid valve (SV1) performance failure (High-pressure pressure cannot be controlled by SV1)</p> <p>20) High-pressure pressure sensor defective</p> <p>21) High-pressure pressure sensor input circuit defective in multi controller board</p>	<p>1)~6) Check indoor unit and repair defect.</p> <p>7) Check if stop valve is fully open.</p> <p>8) Check piping and repair defectives.</p> <p>9)~12) Check outdoor unit and repair defect.</p> <p>13) Check the detected temperature of outside temperature thermistor on LED display.</p> <p>14)~16) Put the power off and check F5 is displayed when the power is put again. When F5 is displayed, refer to "Judgment and action" for F5.</p> <p>17) Check linear expansion valve. Refer to 9-6.</p> <p>18) Replace outdoor controller board.</p> <p>19) Check the solenoid valve performance.</p> <p>20) Check the high-pressure pressure sensor.</p> <p>21) Check the high-pressure pressure sensor.</p>

Error Code	Abnormal point and detection method	Case	Judgment and action
U2 (1102)	(1) High discharging temperature Abnormal if discharge temperature thermistor (TH4) exceeds 125°C or 110°C continuously for 5 minutes. Abnormal if pressure detected by high pressure sensor and converted to saturation temperature exceeds 40°C during defrosting and discharge temperature thermistor (TH4) exceeds 110°C.	① Overheated compressor operation caused by shortage of refrigerant ② Defective operation of stop valve ③ Defective thermistor ④ Defective outdoor controller board ⑤ Defective action of linear expansion valve	① Check intake superheat. Check leakage of refrigerant. Charge additional refrigerant. ② Check if stop valve is fully open. ③④ Turn the power off and check if U3 is displayed when the power is turned on again. When U3 is displayed, refer to "Judgement and action" for U3. ⑤ Check linear expansion valve. Refer to 9-6.
	(2) Refrigerant shortage abnormality ① When the conditions of below detecting mode I or II are satisfied (1st detection) during the compressor operation, the compressor stops and restarts operation in 3 minutes. <Detecting mode I > When the below conditions are satisfied completely. 1. Compressor is operating in HEAT mode. 2. Discharge superheat is 70°C or more. 3. Difference of outer temperature thermistor (TH7) and outdoor piping temp. thermistor (TH3) applies to the formula of (TH7-TH3)<5°C. 4. High-pressure pressure sensor is below about 2.04MPa. <Detecting mode II > When the below conditions are satisfied completely. 1. Compressor is operating. 2. When cooling, discharge superheat is 80°C or more. When heating, discharge superheat is 90°C or more. High pressure sensor is below about 2.32MPa. ② When the conditions of detecting mode I and II are satisfied again (2nd detection) within 30 minutes since the compressor has stopped, it stops abnormally. In this time, <U2> is displayed. ③ When the conditions of detecting mode I and II are satisfied again after 30 minutes since the compressor has stopped (1st time), it becomes the 1st detection and same performance as above ①. ④ It is being delay for abnormal stop during 30 minutes since the compressor has stopped. In this time, check delay code <U2> will be displayed.	① Gas leakage, Gas shortage ② When heating operation, scant refrigerant operation (When heating, airflow or thermo OFF are mixed-operation, it cause a refrigerant shortage operation.) ③ Ball valve performance failure (Not fully opened.) ④ Error detection of discharge super heat 1) High-pressure pressure sensor defective 2) Discharge temperature thermistor defective 3) Thermistor input circuit defective and high-pressure pressure sensor defective in multi controller board ⑤ Error detection of TH7/TH3 1) Thermistor defective 2) Thermistor input circuit defective in multi controller board	① Check the refrigerant amount. ② Check the operation condition and refrigerant amount. ③ Check the ball valve is fully opened. ④ 1) Check the ball valve is fully opened. 2) Check the resistance of discharge temperature thermistor. 3) According to "Monitoring function for outdoor unit", set the SW2 and check the high-pressure pressure sensor level. According to "Monitoring function for outdoor unit", set the SW2 and check the discharge temp. thermistor level. When the high-pressure sensor and discharge temp. thermistor are normal, if the above mentioned detecting pressure level and temp. are big different from the actual pressure and temp., replace the multi controller board. ⑤ 1) Check the resistance of thermistor. 2) According to "Monitoring function for outdoor unit", set the SW2 and check the outdoor pipe temp. thermistor level. 3) According to "Monitoring function for outdoor unit", set the SW2 and check the outer temp. thermistor level.
U3 (5104)	Open/short circuit of discharge temperature thermistor (TH4) Abnormal if open (3°C or less) or short (217°C or more) is detected during compressor operation. (Detection is inoperative for 10 minutes of compressor starting process and for 10 minutes after and during defrosting.)	① Disconnection or contact failure of connector (TH4) on the outdoor controller circuit board ② Defective thermistor ③ Defective outdoor controller circuit board	① Check connection of connector (TH4) on the outdoor controller circuit board. Check breaking of the lead wire for thermistor (TH4). Refer to 9-6. ② Check resistance value of thermistor (TH4) or temperature by microcomputer. (Thermistor/TH4: Refer to 9-6.) (SW2 on A-Control Service Tool: Refer to 9-8.) ③ Replace outdoor controller board.

Error Code	Abnormal point and detection method	Case	Judgment and action																										
U4 (TH3:5105) (TH7:5106) (TH8:5110) (63HS:5201) (TH-A-E :5131)	(1) Open/short circuit in the outdoor unit thermistors (TH3, TH7, and TH8) and branch box's thermistors(TH-A-E) Abnormal if open or short circuit is detected while the compressor is operating. Open detection of thermistors TH3 is inoperative for 10 seconds to 10 minutes after compressor starting and 10 minutes after and during defrosting. *Check which unit has abnormality in its thermistor by switching the mode of SW2. (Refer to 9-8.) Open/short circuit in the branch box thermistor. (TH-A-TH-E)	①One or more connectors on outdoor controller circuit board (TH3, TH7 and TH8) and branch box controller board (TH-A-E) have contact failure or disconnection. ②Defective thermistor ③Outdoor controller circuit board is defective.	①Check the connector's contact and the electric wires of thermistor. ②Check the resistance value of thermistors or the temperatures by referring to the section of "Monitoring function for outdoor unit". (Convert modes by SW2.) ③Replace the whole outdoor controller board.																										
	<table><tr><th colspan="2">Thermistors</th><th rowspan="2">Open detection</th><th rowspan="2">Short detection</th></tr><tr><th>Symbol</th><th>Name</th></tr><tr><td>TH3</td><td>Thermistor <Outdoor pipe></td><td>- 40℃ or below</td><td>90℃ or above</td></tr><tr><td>TH7</td><td>Thermistor <Outdoor></td><td>- 40℃ or below</td><td>90℃ or above</td></tr><tr><td>TH8</td><td>Thermistor <Heatsink></td><td>- 27℃ or below</td><td>102℃ or above</td></tr><tr><td colspan="4">Branch box unit</td></tr><tr><td>TH-A-E (Room A-E)</td><td>Thermistor (Gas pipe temperature detection)</td><td>- 40℃ or below</td><td>90℃ or above</td></tr></table>			Thermistors		Open detection	Short detection	Symbol	Name	TH3	Thermistor <Outdoor pipe>	- 40℃ or below	90℃ or above	TH7	Thermistor <Outdoor>	- 40℃ or below	90℃ or above	TH8	Thermistor <Heatsink>	- 27℃ or below	102℃ or above	Branch box unit				TH-A-E (Room A-E)	Thermistor (Gas pipe temperature detection)	- 40℃ or below	90℃ or above
	Thermistors		Open detection	Short detection																									
Symbol	Name																												
TH3	Thermistor <Outdoor pipe>	- 40℃ or below	90℃ or above																										
TH7	Thermistor <Outdoor>	- 40℃ or below	90℃ or above																										
TH8	Thermistor <Heatsink>	- 27℃ or below	102℃ or above																										
Branch box unit																													
TH-A-E (Room A-E)	Thermistor (Gas pipe temperature detection)	- 40℃ or below	90℃ or above																										
	(2) High-Pressure sensor (63HS) abnormality ①When detected pressure in high-pressure pressure sensor is 1MPa or less during the operation, the compressor stops and restarts operation in 3 minutes. ②When the detected pressure is 1MPa or less at just before of restarting, the compressor stops abnormally. In this time, <U4> is displayed. ③For 3 minutes after the compressor stops, the unit delays to abnormal stop. Then, the outdoor unit address No. and check delay code <U4> blinks alternately on the 7 SEG digital display. ④For 3 minutes after starting compressor, for defrosting or for 3 minutes after recovery from defrosting, abnormality is not determined as abnormality.	①High-pressure sensor failure ②Internal pressure decrease by gas leakage ③Connector contact failure disconnection ④Controller board input circuit failure	① Check the high-pressure pressure sensor. ② Check the internal pressure. ③ Check the high-pressure pressure sensor. ④ Check the controller board																										
U5 (4230)	Abnormal temperature of heatsink Abnormal if heatsink thermistor(TH8) detects temperature indicated 85℃	① The outdoor fan motor is locked. ② Failure of outdoor fan motor ③ Air flow path is clogged. ④ Rise of ambient temperature ⑤ Defective thermistor ⑥ Defective input circuit of outdoor power circuit board ⑦ Failure of outdoor fan drive circuit	①② Check outdoor fan. ③ Check air flow path for cooling. ④ Check if there is something which causes temperature rise around outdoor unit. (Upper limit of ambient temperature is 46℃.) Turn off power, and on again to check if U5 is displayed within 30 minutes. If U4 is displayed instead of U5, follow the action to be taken for U4. ⑤ Check resistance value of thermistor (TH8) or temperature by microcomputer. (Thermistor/TH8: Refer to 9-6.) (SW2 on A-Control Service Tool: Refer to 9-8.) ⑥ Replace outdoor power circuit board. ⑦ Replace outdoor controller circuit board.																										
U6 (4250)	Abnormality of power module Check abnormality by driving power module in case overcurrent is detected. (UF or UP error condition)	① Outdoor stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power circuit board	① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U-V-W phase) to compressor. Refer to 9-7. ④ Check compressor referring to 9-6. ⑤ Replace outdoor power circuit board.																										

Error Code	Abnormal point and detection method	Case	Judgment and action
U7 (1520)	<p>(1) Too low superheat due to low discharge temperature Abnormal if discharge superheat is continuously detected -15°C or less even though linear expansion valve has minimum open pulse after compressor starts operating for 10 minutes.</p> <p>(2) Erroneous connection of refrigerant pipes or the connecting wires Consider the stopping indoor unit abnormal if condenser/evaporator temperature thermistor (TH5 or RT12) detects -5°C or below continuously for 5 minutes during a compressor's operation in cooling mode.</p>	<p>① Disconnection or loose connection of discharge temperature thermistor. (TH4) ② Defective holder of discharge temperature thermistor</p> <p>① Failure in piping / wiring ② Pipe (liquid) is clogged or crushed.</p>	<p>①② Check the installation conditions of discharge temperature thermistor (TH4).</p> <p>① Check piping / wiring between branch box and indoor unit. Refer to "Test run (Using remote controller)". ② Check the pipe for refrigerant and change the wrong parts.</p>
U8 (4400)	<p>Outdoor fan motor The outdoor fan motor is considered to be abnormal if the rotational frequency of fan motor is abnormal when detected during operation. Fan motor rotational frequency is abnormal if;</p> <ul style="list-style-type: none"> • 100 rpm or below detected continuously for 15 seconds at 26°C or more outside air temperature • 50 rpm or below or 1500 rpm or more detected continuously for 1 minute. 	<p>① Failure in the operation of the DC fan motor ② Failure in the outdoor circuit controller board</p>	<p>① Check or replace the DC fan motor. ② Check the voltage of the outdoor circuit controller board during operation. ③ Replace the outdoor circuit controller board. (when the failure is still indicated even after performing the remedy ① above.)</p>
U9 (4220)	<p>Overvoltage or voltage shortage and abnormal synchronous signal to main circuit Abnormal if any of followings are detected during compressor operation;</p> <ul style="list-style-type: none"> • Decrease of DC bus voltage to 310V • Instantaneous decrease of DC bus voltage to 200V • Increase of DC bus voltage to 400V • Decrease of input current of outdoor unit to 0.5A only if operation frequency is more than or equal to 40Hz or compressor current is more than or equal to 5A. 	<p>① Decrease of power supply voltage ② Disconnection of compressor wiring ③ Defective 52C ④ Defective ACT module ⑤ Defective ACT module drive circuit of outdoor power circuit board ⑥ Disconnection or loose connection of CNAF ⑦ Defective 52C drive circuit of outdoor controller circuit board ⑧ Disconnection or loose connection of CN5 on the outdoor power circuit board ⑨ Disconnection or loose connection of CN2 on the outdoor power circuit board</p>	<p>① Check the facility of power supply. ② Correct the wiring (U·V·W phase) to compressor. Refer to 9-7. ③ Replace 52C. (VA/VA₁/VA₂) Replace noise filter circuit board. (VA₃) ④ Replace ACT module. ⑤ Replace outdoor power circuit board. ⑥ Check CNAF wiring. ⑦ Replace outdoor controller circuit board. (220-240VAC output : VA/VA₁/VA₂) (12V DC output : VA₃) ⑧ Check CN5 wiring on the outdoor power circuit board. Refer to 9-7. ⑨ Check CN2 wiring on the outdoor power circuit board. Refer to 9-7.</p>
UF (4100)	<p>Compressor overcurrent interruption (When compressor locked) Abnormal if overcurrent of DC bus or compressor is detected within 30 seconds after compressor starts operating.</p>	<p>① Stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power board</p>	<p>① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U·V·W phase) to compressor. Refer to 9-7. ④ Check compressor. Refer to 9-6. ⑤ Replace outdoor power circuit board.</p>



Error Code	Abnormal point and detection method	Case	Judgment and action
UH (5300)	Current sensor error Abnormal if current sensor detects -1.5A to 1.5A during compressor operation. (This error is ignored in case of test run mode.)	① Disconnection of compressor wiring ② Defective circuit of current sensor on outdoor power circuit board	① Correct the wiring (U-V-W phase) to compressor. Refer to 9-7. ② Replace outdoor power circuit board.
	Abnormal if input current exceeds 38 A or 34A continuously 10 seconds.(Current sensor on noise filter board detects input current)	① Decrease of power supply voltage	① Check the facility of power supply.
UL (1300)	Low pressure (63L worked) Abnormal if 63L is worked (under-0.03MPa) during compressor operation. 63L: Low-pressure switch	① Stop valve of outdoor unit is closed during operation. ② Disconnection or loose connection of connector (63L) on outdoor controller board ③ Disconnection or loose connection of 63L ④ Defective outdoor controller board ⑤ Leakage or shortage of refrigerant ⑥ Malfunction of linear expansion valve	① Check stop valve. ②~④ Turn the power off and on again to check if F3 is displayed on restarting. If F3 is displayed, follow the F3 processing direction. ⑤ Correct to proper amount of refrigerant. ⑥ Check linear expansion valve. Refer to 9-6.
UP (4210)	Compressor overcurrent interruption Abnormal if overcurrent DC bus or compressor is detected after compressor starts operating for 30 seconds.	① Stop valve of outdoor unit is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective fan of indoor/outdoor units ⑤ Short cycle of indoor/outdoor units ⑥ Defective input circuit of outdoor controller board ⑦ Defective compressor	① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U-V-W phase) to compressor. Refer to 9-7. ④ Check indoor/outdoor fan. ⑤ Solve short cycle. ⑥ Replace outdoor controller circuit board. ⑦ Check compressor. Refer to 9-6. * Before the replacement of the outdoor controller circuit board, disconnect the wiring for compressor from the outdoor power circuit board and check the output voltage among phases, U, V, W, during test run. No defect on board if voltage among phases (U-V, V-W and W-U) is same. Make sure to perform the voltage check with same performing frequency.
E0 (No display)	Remote controller communication error (Signal receiving error) (1) Abnormal if any signal from IC of refrigerant address "0" could not be normally received for 3 minutes. (2) Abnormal if sub remote controller could not receive any signal for 2 minutes.	① Defective communication circuit of remote controller ② Defective communication circuit of indoor controller board of refrigerant address "0" ③ Noise has entered into transmission line of remote controller. ④ All remote controllers are set as "sub" remote controller. In this case, E4 is displayed at outdoor LED, and E0 is displayed at remote controller.	①~③ Diagnose remote controller. Take actions as follows according to diagnosis result. a) When "RC OK" is displayed, remote controllers have no problem. Turn the power off, and on again to check. If, "PLEASE WAIT" or "H0" is displayed for 4 minutes or more, replace indoor controller board. b) When "RC NG" is displayed, replace remote controller. c) When "RC E3" or "ERC 00-66" is displayed, noise may be causing abnormality. ④ Set a remote controller to main, and the other to sub. * The descriptions above, ①-③, are for E0 and E3.
E3 (No display)	Remote controller communication error (Transmitting error) (1) Abnormal if sub remote controller could not find blank of transmission path for 6 seconds. (2) Abnormal if remote controller could not finish transmitting 30 times continuously.	① Defective communication circuit of remote controller ② Noise has entered into transmission line of remote controller. ③ Two remote controllers are set as "main." (In case of 2 remote controllers)	
E8 (6840)	Indoor - branch box/branch box - outdoor unit communication error (Signal receiving error) (Branch box/outdoor unit) (1) Abnormal if branch box/outdoor controller circuit board could not receive anything normally for 3 minutes.	① Contact failure of indoor/outdoor unit connecting wire ② Defective communication circuit of branch box/outdoor controller circuit board ③ Defective communication circuit of indoor/branch box controller board ④ Noise has entered into indoor-branch box/branch box-outdoor unit connecting wire.	① Check disconnection or looseness of indoor-branch box/branch box-outdoor unit connecting wire of indoor or branch box or outdoor units. ②~④ Turn the power off, and on again to check. Replace indoor controller board or branch controller board or outdoor controller circuit board if abnormality is displayed again.

Error Code	Abnormal point and detection method	Case	Judgment and action
E9 (6841)	Indoor - branch box/branch box - outdoor unit communication error (Transmitting error) (Branch box/outdoor unit) (1) Abnormal if "0" receiving is detected 30 times continuously though branch box/outdoor controller circuit board has transmitted "1". (2) Abnormal if branch box/outdoor controller circuit board could not find blank of transmission path for 3 minutes.	① Indoor-branch box/branch box-outdoor unit connecting wire has contact failure. ② Defective communication circuit of outdoor controller circuit board ③ Noise has entered power supply. ④ Noise has entered Indoor-branch box/branch box-outdoor unit connecting wire.	① Check disconnection or looseness of indoor-branch box/branch box-outdoor unit connecting wire. ②~④ Turn the power off, and on again to check. Replace outdoor controller circuit board if abnormality is displayed again.
EF (6607 or 6608)	Non defined error code This code is displayed when non defined error code is received.	① Noise has entered transmission wire of remote controller. ② Noise has entered Indoor-branch box/branch box-outdoor unit connecting wire. ③ Model name of remote controller is PAR-S25A.	①② Turn the power off, and on again to check. Replace indoor controller board or branch controller board or outdoor controller circuit board if abnormality is displayed again. ③ Replace remote controller with MA remote controller.
Ed (0403)	Serial communication error 1. Abnormal if serial communication between outdoor controller circuit board and outdoor power circuit board is defective.	① Breaking of wire or contact failure of connector CN2 between the outdoor controller circuit board and the outdoor power circuit board ② Breaking of wire or contact failure of connector CN4 between the outdoor controller circuit board and the outdoor power circuit board ③ Defective communication circuit of outdoor power circuit board ④ Defective communication circuit of outdoor controller circuit board for outdoor power circuit board	①② Check connection of each connector CN2 and CN4 between the outdoor controller circuit board and the outdoor power circuit board. ③ Replace outdoor power circuit board. ④ Replace outdoor controller circuit board.
PA (2520)	Forced compressor stop. (Overlap multi function of drain pump in indoor unit and linear expansion valve in branch box.) When condition which the outdoor unit is stopped forcibly consists, or the drain sensor detects continuously to go under water 5 times, and also detects "[liquid pipe temperature-suction temperature][-10deg" for 30 minutes continuously, the indoor unit stops abnormally (however, fan operates by normal control) that indoor unit and excluding [Fan mode or OFF] in same refrigerant system. Also, the outdoor unit which is connected to that indoor unit with refrigerant system stops abnormality (compressor is inhibited to operation). In this time, <PA> is displayed.	① Drain pump trouble ② Drain defective · Drain pump clogging · Drain pipe clogging ③ Open circuit of drain sensor side heater ④ Contact failure of drain sensor connector ⑤ Dew condensation on drain sensor · Drain water descends along lead wire. · Drain water waving due to filter clogging ⑥ Indoor controller board defective · Drain pump drive circuit failure · Drain heater output circuit failure ⑦ Both of above mentioned ①~⑥ and the linear expansion valve full closed failure happens synchronistically.	① Check the drain pump. Performance ② Please confirm whether water can be drained. ③ Confirm the resistance of the drain sensor side heater. ④ Check the connector contact failure. ⑤ Check the drain sensor leadwire mounted. Check the filter clogging. ⑥ If the above mentioned checkpoints has any problem, replace the indoor controller board. ⑦ Check whether the indoor linear expansion valve leaks or not.

9-4. TROUBLESHOOTING BY INFERIOR PHENOMENA

Phenomena	Factor	Countermeasure
1. Remote controller display works normally and the unit performs cooling operation, however, the capacity cannot be fully obtained. (The air does not cool well.)	①Refrigerant shortage ②Filter clogging ③Heat exchanger clogging ④Air duct short cycle	① If refrigerant leaks, discharging temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. Check pipe connections for gas leakage. ② Open intake grille and check the filter. Clean the filter by removing dirt or dust on it. ③ If the filter is clogged, indoor pipe temperature rises and discharging pressure increases. Check if heat exchanger is clogged by inspecting discharging pressure. Clean the heat exchanger. ④ Remove the shield.
2. Remote controller display works normally and the unit performs heating operation, however, the capacity cannot be fully obtained.	①Linear expansion valve fault Opening cannot be adjusted well due to linear expansion valve fault. ②Refrigerant shortage ③Lack of insulation for refrigerant piping ④Filter clogging ⑤Heat exchanger clogging ⑥Air duct short cycle ⑦Bypass circuit of outdoor unit fault	① Discharging temperature and indoor heat exchanger temperature does not rise. Inspect the failure by checking discharging pressure. Replace linear expansion valve. ② If refrigerant leaks, discharging temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. Check pipe connections for gas leakage. ③ Check the insulation. ④ Open intake grille and check the filter. Clean the filter by removing dirt or dust on it. ⑤ If the filter is clogged, indoor pipe temperature rises and discharging pressure increases. Check if heat exchanger is clogged by inspecting discharging pressure. Clean the heat exchanger. ⑥ Remove the shield. ⑦ Check refrigerant system during operation.
3.①For 3 minutes after temperature adjuster turns off, the compressor will not start operating even if temperature adjuster is turned on. ②For 3 minutes after temperature adjuster turns on, the compressor will not stop operating even if temperature adjuster is turned off. (Compressor stops operating immediately when turning off by the remote controller.)	①②Normal operation (For protection of compressor)	①②Normal operation

9-5. SPECIAL FUNCTIONS

9-5-1. Low noise mode (on-site modification) (Fig. 9-1)

By performing the following modification, operation noise of the outdoor unit can be reduced by about 3-4 dB.

The low noise mode will be activated when a commercially available timer or the contact input of an ON/OFF switch is added to the CNDM connector (optional parts) on the control board of the outdoor unit.

- The capacity may be insufficient according to the outdoor temperature and conditions, etc.

- ① Complete the circuit as shown when using the external input adapter (PAC-SC36NA). (Optional parts)

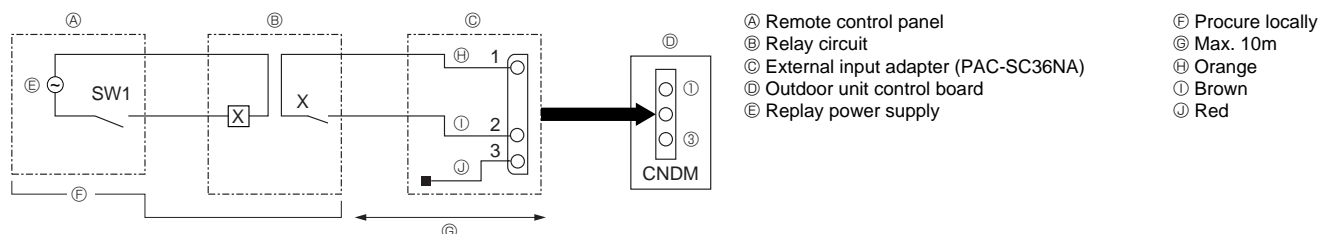


Fig.9-1

9-5-2. Demand function (on-site modification) (Fig. 9-2)

- It is possible to reduce electricity consumption within a range from 0 to 100 % by performing the following on-site installation.

The demand function can be enabled by adding a commercially available input contact point ON/OFF switch to the CNDM connector (the contact point demand input, optional parts).

- ① Incorporate the “Adapter for external input (PAC-SC36NA)” into the circuit as shown in the diagram below.
- ② By switching SW7-1 on the control circuit board for the outdoor unit, the following power consumption restrictions (compared to rated power) can be set.

SW7-1	Power consumption when SW2 is on
OFF	0% (Forced compressor stop)
ON	50%

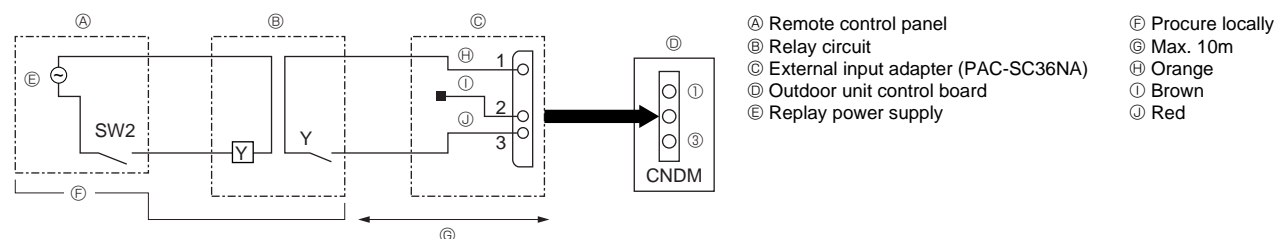


Fig.9-2

9-5-3. Error and compressor operation monitoring function (CN51)

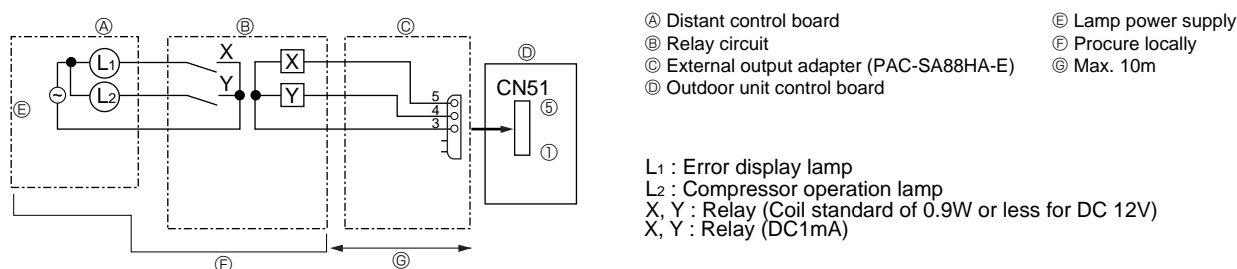
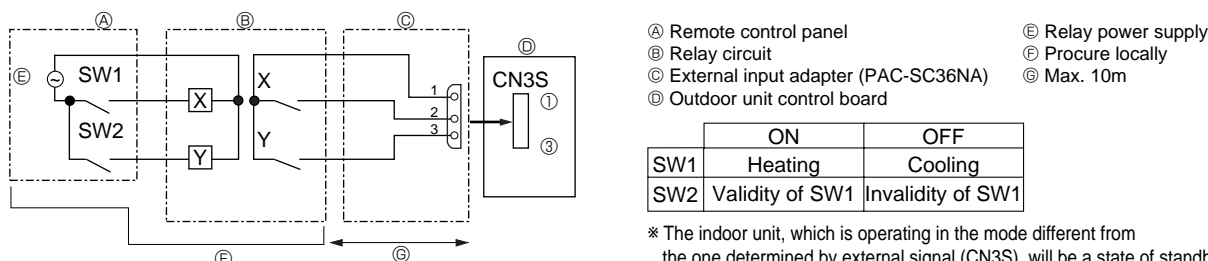


Fig.9-3

9-5-4. Auto change over - Operation mode locking function by external signal (CN3S)

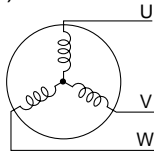


- * The indoor unit, which is operating in the mode different from the one determined by external signal (CN3S), will be a state of standby.
- * The setting becomes effective when the outdoor unit is under stop.
- * The operation mode specified by test run will be prior to the mode of this function.

Fig.9-4

9-6. HOW TO CHECK THE PARTS

OUTDOOR UNIT : MXZ-8A140VA MXZ-8A140VA₁ MXZ-8A140VA₂ MXZ-8A140VA₃

Parts name	Check points										
Thermistor (TH3) <Outdoor pipe> Thermistor (TH4) <Discharge> Thermistor (TH7) <Outdoor> Thermistor (TH8) <Heatsink>	Disconnect the connector then measure the resistance with a tester. (At the ambient temperature 10℃ ~30℃) <table><tr><td></td><td>Normal</td><td>Abnormal</td></tr><tr><td>TH4</td><td>160kΩ~410kΩ</td><td rowspan="3">Open or short</td></tr><tr><td>TH3 TH7</td><td>4.3kΩ~9.6kΩ</td></tr><tr><td>TH8</td><td>39kΩ~105kΩ</td></tr></table>		Normal	Abnormal	TH4	160kΩ~410kΩ	Open or short	TH3 TH7	4.3kΩ~9.6kΩ	TH8	39kΩ~105kΩ
	Normal	Abnormal									
TH4	160kΩ~410kΩ	Open or short									
TH3 TH7	4.3kΩ~9.6kΩ										
TH8	39kΩ~105kΩ										
Fan motor(MF1,MF2)	Refer to next page.										
Solenoid valve coil <Four-way valve> (21S4)	Measure the resistance between the terminals with a tester. (At the ambient temperature 20℃) <table><tr><td colspan="2">Normal</td><td>Abnormal</td></tr><tr><td>MXZ-8A140VA₍₁₎</td><td>MXZ-8A140VA_{2, 3}</td><td rowspan="2">Open or short</td></tr><tr><td>1370±100Ω</td><td>1435±150Ω</td></tr></table>	Normal		Abnormal	MXZ-8A140VA ₍₁₎	MXZ-8A140VA _{2, 3}	Open or short	1370±100Ω	1435±150Ω		
Normal		Abnormal									
MXZ-8A140VA ₍₁₎	MXZ-8A140VA _{2, 3}	Open or short									
1370±100Ω	1435±150Ω										
Motor for compressor (MC) 	Measure the resistance between the terminals with a tester. (Winding temperature 20℃) <table><tr><td>Normal</td><td>Abnormal</td></tr><tr><td>0.188Ω</td><td>Open or short</td></tr></table>	Normal	Abnormal	0.188Ω	Open or short						
Normal	Abnormal										
0.188Ω	Open or short										
Solenoid valve coil <Bypass valve> (SV1)	Measure the resistance between the terminals with a tester. (At the ambient temperature 20℃) <table><tr><td>Normal</td><td>Abnormal</td></tr><tr><td>1327±10Ω</td><td>Open or short</td></tr></table>	Normal	Abnormal	1327±10Ω	Open or short						
Normal	Abnormal										
1327±10Ω	Open or short										
Solenoid valve coil <Bypass valve> (SV2)	Measure the resistance between the terminals with a tester. (At the ambient temperature 20℃) <table><tr><td colspan="2">Normal</td><td>Abnormal</td></tr><tr><td>MXZ-8A140VA₍₁₎</td><td>MXZ-8A140VA_{2, 3}</td><td rowspan="2">Open or short</td></tr><tr><td>1197±10Ω</td><td>1450±150Ω</td></tr></table>	Normal		Abnormal	MXZ-8A140VA ₍₁₎	MXZ-8A140VA _{2, 3}	Open or short	1197±10Ω	1450±150Ω		
Normal		Abnormal									
MXZ-8A140VA ₍₁₎	MXZ-8A140VA _{2, 3}	Open or short									
1197±10Ω	1450±150Ω										

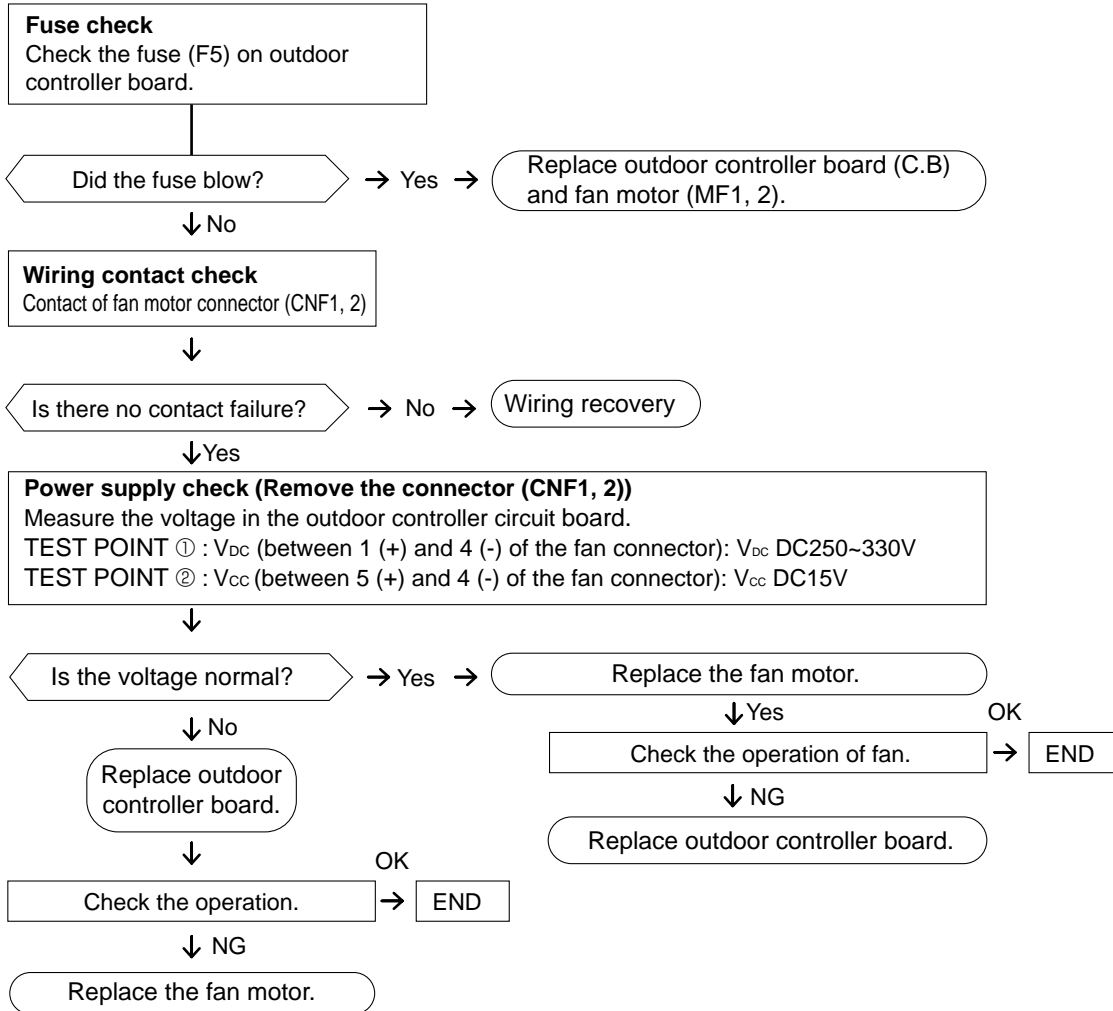
Check method of DC fan motor (fan motor / outdoor controller circuit board)

① Notes

- High voltage is applied to the connector (CNF1, 2) for the fan motor. Give attention to the service.
- Do not pull out the connector (CNF1, 2) for the motor with the power supply on.
(It causes trouble of the outdoor controller circuit board and fan motor.)

② Self check

Symptom : The outdoor fan cannot turn around.



<Thermistor feature chart>

Low temperature thermistors

Pipe temperature thermistor <Liquid> (TH3)

Pipe temperature thermistor <cond.> (TH6)

Outdoor temperature thermistor (TH7)

Gas pipe temperature thermistor (TH-A ~ TH-E).... Branch box

Thermistor R0 = 15kΩ ± 3%

B constant = 3480 ± 2%

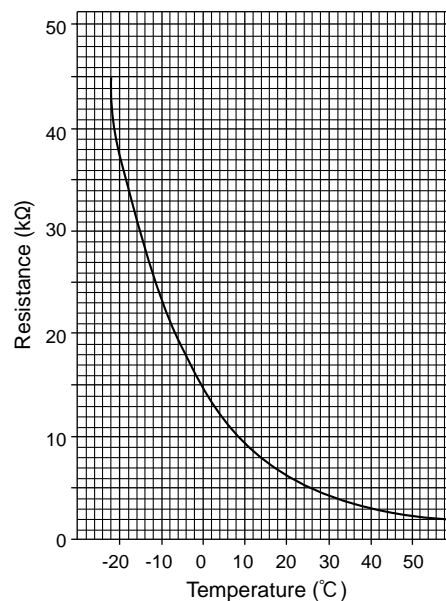
$$R_t = 15 \exp \left\{ 3480 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

0°C 15kΩ 30°C 4.3kΩ

10°C 9.6kΩ 40°C 3.0kΩ

20°C 6.3kΩ

25°C 5.4kΩ



Medium temperature thermistor

Heatsink temperature thermistor (TH8)

Thermistor R50 = 17kΩ ± 2%

B constant = 4170 ± 3%

$$R_t = 17 \exp \left\{ 4170 \left(\frac{1}{273+t} - \frac{1}{323} \right) \right\}$$

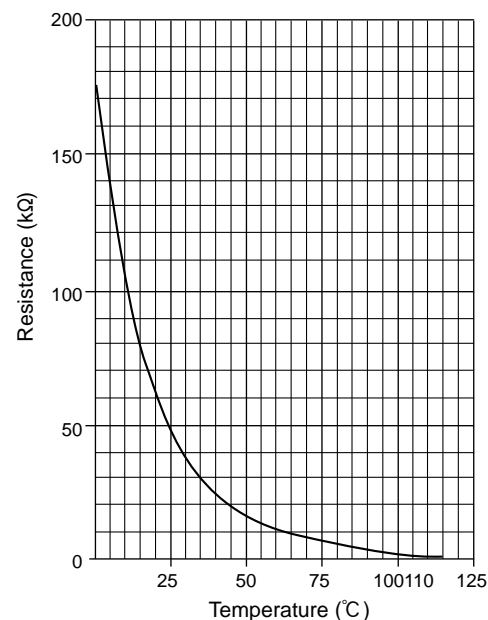
0°C 180kΩ

25°C 50kΩ

50°C 17kΩ

70°C 8kΩ

90°C 4kΩ



High temperature thermistor

Discharge temperature thermistor (TH4)

Thermistor R120 = 7.465kΩ ± 2%

B constant = 4057 ± 2%

$$R_t = 7.465 \exp \left\{ 4057 \left(\frac{1}{273+t} - \frac{1}{393} \right) \right\}$$

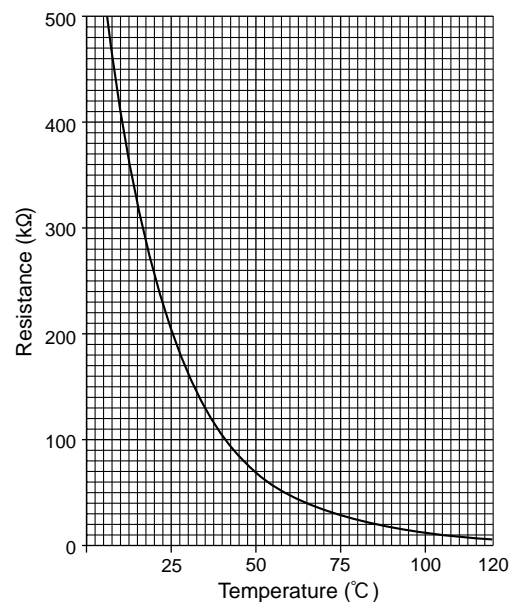
20°C 250kΩ 70°C 34kΩ

30°C 160kΩ 80°C 24kΩ

40°C 104kΩ 90°C 17.5kΩ

50°C 70kΩ 100°C 13.0kΩ

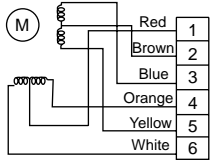
60°C 48kΩ 110°C 9.8kΩ



**BRANCH BOX : PAC-AK50BC
PAC-AK30BC**

Parts name	Check points				
Thermistor (TH-A~E) <Gas pipe>	Disconnect the connector then measure the resistance with a tester. (At the ambient temperature 10℃~30℃)				
	Normal		Abnormal		
	4.3kΩ~9.6kΩ		Open or short		
Linear expansion valve (LEV-A~E)	Disconnect the connector then measure the resistance with a tester. (Winding temperature 20℃)				
	Normal				Abnormal
	Red - White	Red - Orange	Brown - Yellow	Brown - Blue	Open or short
46±4Ω					

Diagram showing the wiring for the Linear expansion valve (LEV-A~E). The valve has six terminals labeled 1 through 6. The wires are color-coded: Red (Terminal 1), Brown (Terminal 2), Blue (Terminal 3), Orange (Terminal 4), Yellow (Terminal 5), and White (Terminal 6). A motor symbol (M) is connected to terminals 1 and 2.

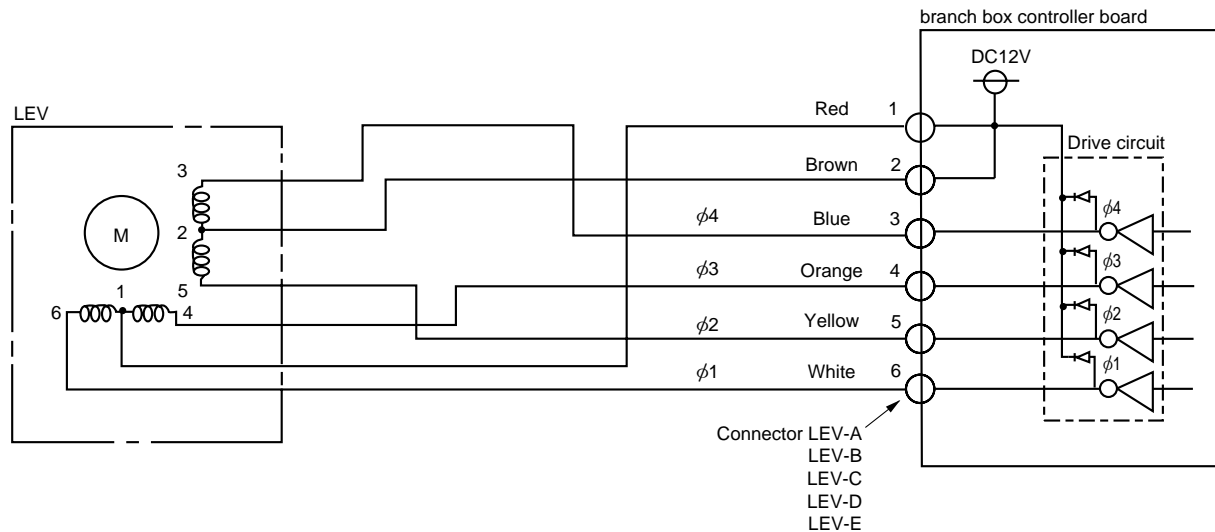


Linear expansion valve (LEV) in Branch box

(1) Operation summary of the linear expansion valve

- Linear expansion valve open/close through stepping motor after receiving the pulse signal from the branch box controller board.
- Valve position can be changed in proportion to the number of pulse signal.

<Connection between the branch box controller board and the linear expansion valve>



<Output pulse signal and the valve operation>

Output (Phase)	Output							
	1	2	3	4	5	6	7	8
$\phi 1$	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
$\phi 2$	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
$\phi 3$	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
$\phi 4$	OFF	OFF	OFF	OFF	OFF	ON	ON	ON

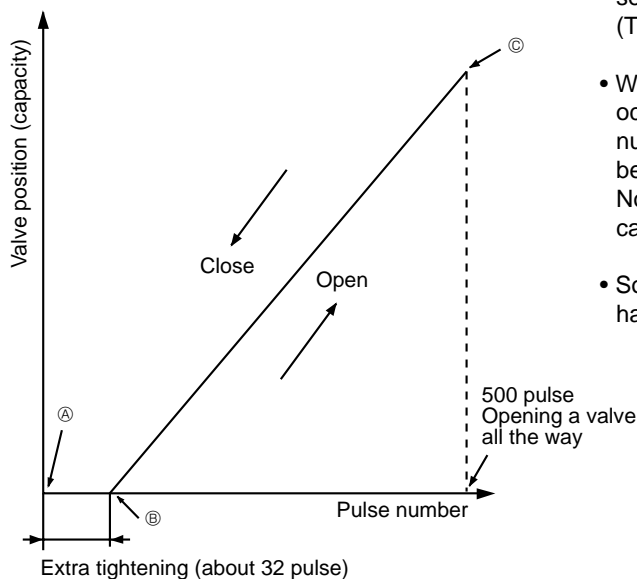
Opening a valve : 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1 → 8

Closing a valve : 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 1

The output pulse shifts in above order.

- When linear expansion valve operation stops, all output phase become OFF.

(2) Linear expansion valve operation

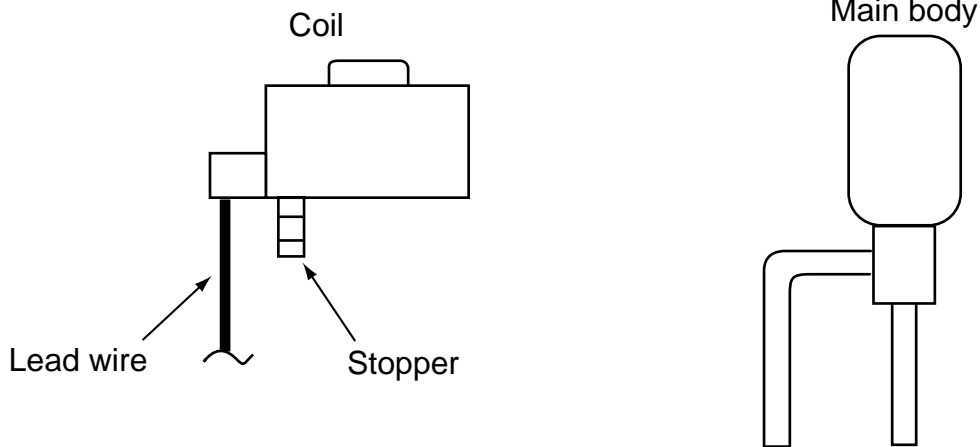


- When the switch is turned on, 700 pulse closing valve signal will be sent till it goes to ① point in order to define the valve position. (The pulse signal is being sent for about 20 seconds.)
- When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valve : however, when the pulse number moves from ② to ① or when the valve is locked, sound can be heard. No sound is heard when the pulse number moves from ② to ① in case coil is burnt out or motor is locked by open-phase.
- Sound can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

(3) How to attach and detach the coil of linear expansion valve

<Composition>

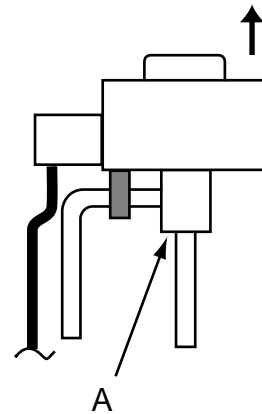
Linear expansion valve is separable into the main body and the coil as shown in the diagram below.



<How to detach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and detach the coil by pulling it upward.

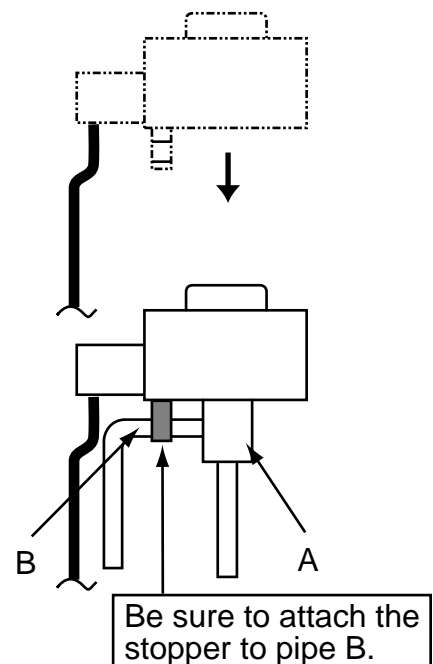
Be sure to detach the coil holding main body firmly. Otherwise pipes can bend due to pressure.



<How to attach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and attach the coil by inserting it downward into the main body. Then securely attach the coil stopper to pipe B. (At this time, be careful that stress is not added to lead wire and main body is not wounded by lead wire.) If the stopper is not firmly attached to pipe B, coil may be detached from the main body and that can cause defective operation of linear expansion valve.

To prevent piping stress, be sure to attach the coil holding the main body of linear expansion valve firmly. Otherwise pipe may break.



Troubleshooting

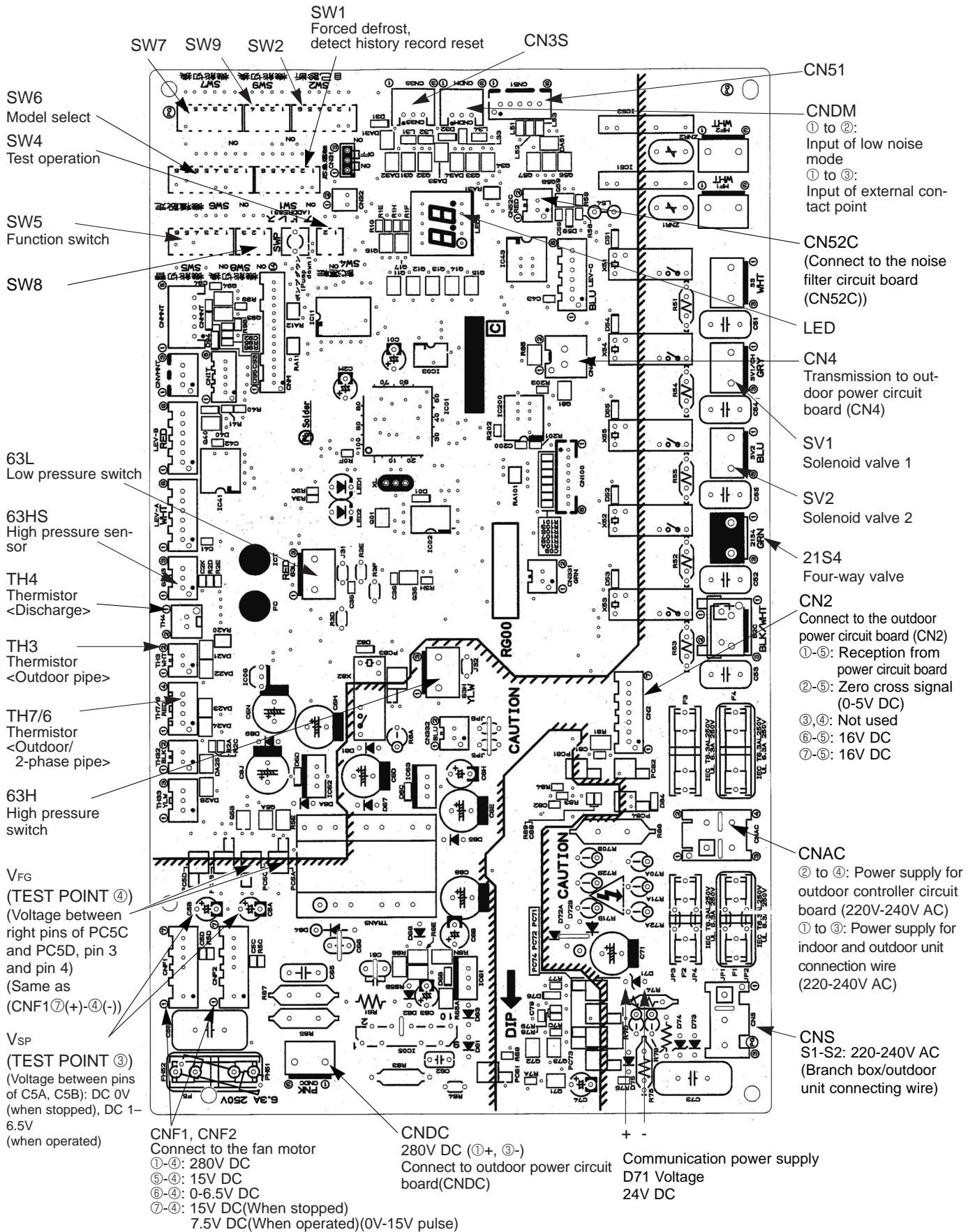
Problem	Check point	Corrective measure
Locked expansion valve	If the linear expansion valve becomes locked and the motor is still operating, the motor will emit a clicking noise and will not function. This clicking noise indicates an abnormality.	Replace the linear expansion valve.
Short circuit or broken circuit in expansion valve motor coil	Use an all-purpose electrical meter to measure the resistance between the different coils (red-white, red-orange, brown-yellow, brown-blue). Normal resistance is within a range of $46\Omega \pm 4\%$.	Replace the linear expansion valve.
Valve does not close completely.	In order to check the linear expansion valve, operate 1 indoor unit in the fan mode and another in the cooling mode. Then, use the outdoor multi controller board to operate the monitor and check the pipe temperature of the indoor unit. The linear expansion valve should be fully closed when the fan is operating. The temperature measured by the temperature sensor will drop if there is any leakage. If the measured temperature is significantly lower than that on the remote controller, this indicates that the valve is not closed. It is not necessary to replace the linear expansion valve if the leak of refrigerant is small and does not cause a malfunction.	Replace the linear expansion valve if there is a major leak of refrigerant.
Incorrect connection or connection failure	① Check improperly connected connector terminals and the wire colors. ② Remove the connector on the controller board side and check electrical conductance.	Continuity check of wrong part

MXZ-8A140VA MXZ-8A140VA₁ MXZ-8A140VA₂

60

Outdoor controller circuit board MXZ-8A140VA₃

<CAUTION> TEST POINT① is high voltage.



9-7-2. Outdoor noise filter circuit board MXZ-8A140VA

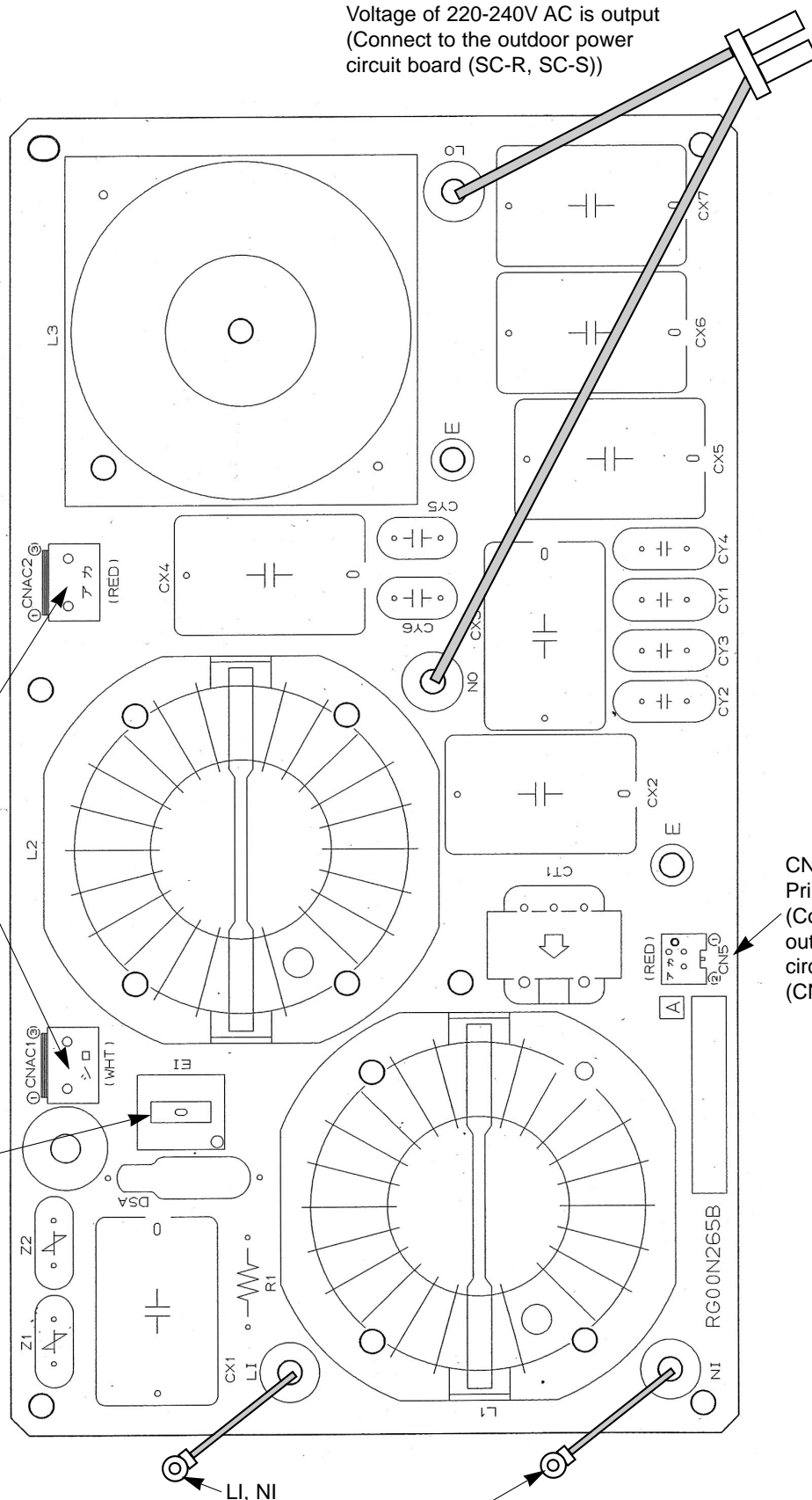
LO, NO
Voltage of 220-240V AC is output
(Connect to the outdoor power
circuit board (SC-R, SC-S))

CNAC1, CNAC2
220-240V AC
(Connect to the
outdoor controller
circuit board
(CNAC))

EI
Connect to
the earth

CN5
Primary current
(Connect to the
outdoor power
circuit board
(CN5))

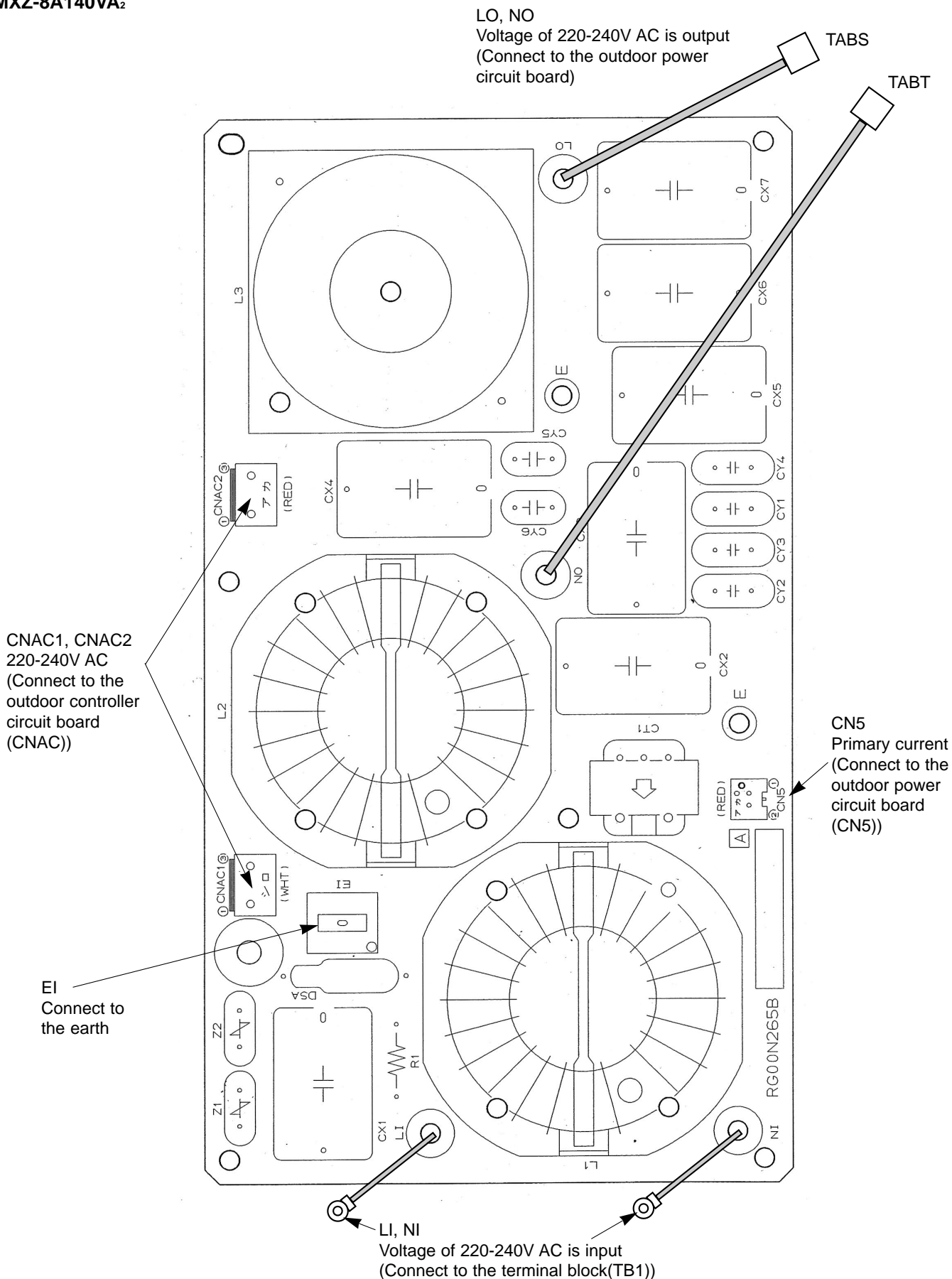
LI, NI
Voltage of 220-240V AC is input
(Connect to the terminal block(TB1))



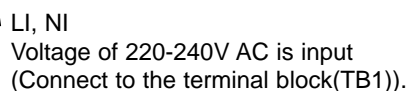
Outdoor noise filter circuit board

MXZ-8A140VA₁

MXZ-8A140VA₂



MXZ-8A140VA₃



9-7-3. Outdoor power circuit board MXZ-8A140VA

Brief Check of POWER MODULE

※ Usually, they are in a state of being short-circuited if they are broken. Measure the resistance in the following points (connectors, etc.). If they are short-circuited, it means that they are broken.

1. Check of POWER MODULE

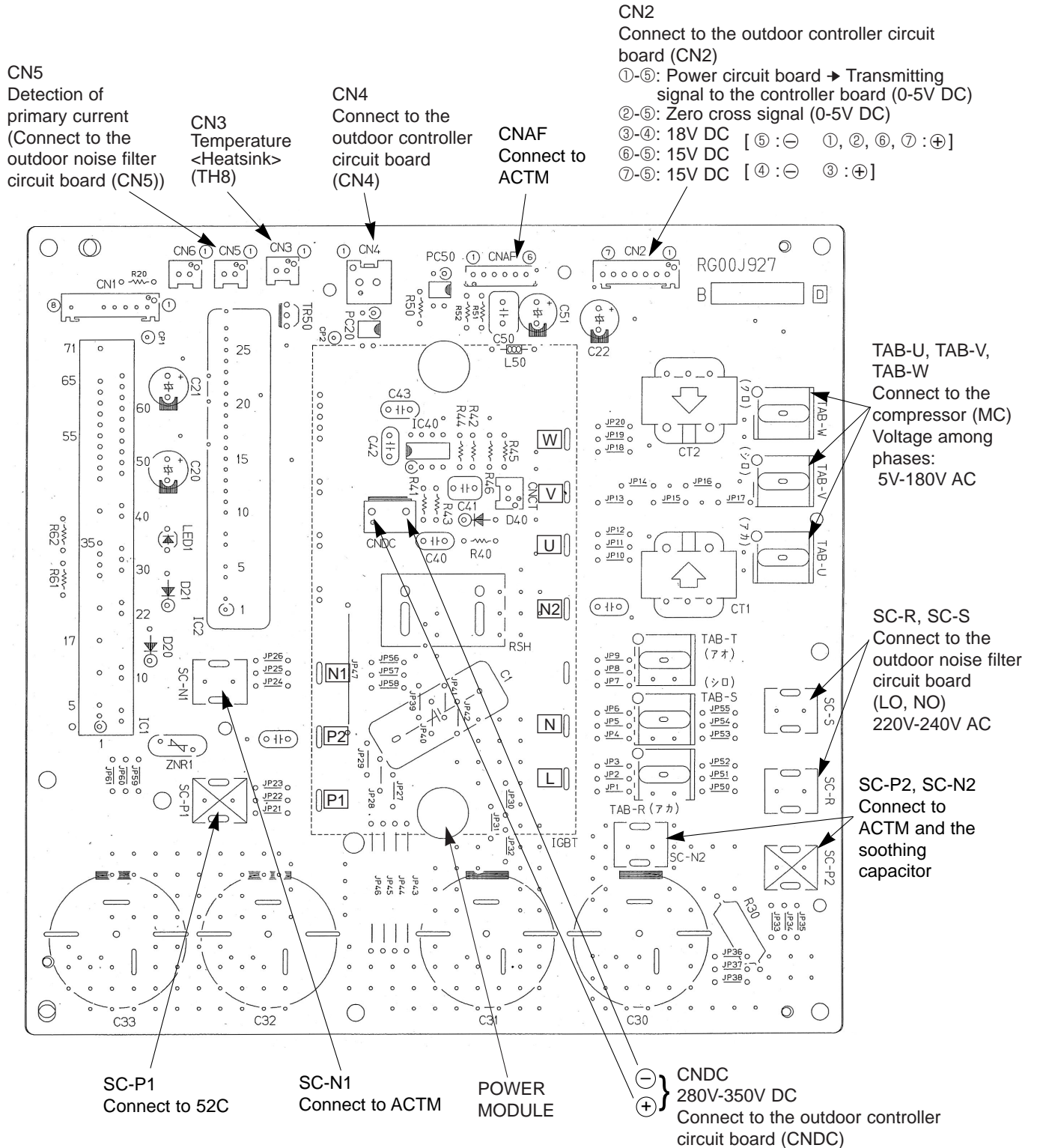
①. Check of DIODE circuit

L - **P1**, **N** - **P1**, **L** - **N1**, **N** - **N1**

②. Check of IGBT circuit

P2 - **U**, **P2** - **V**, **P2** - **W**, **N2** - **U**, **N2** - **V**, **N2** - **W**

Note: The marks, **L**, **N**, **N1**, **N2**, **P1**, **P2**, **U**, **V** and **W** shown in the diagram are not actually printed on the board.



Outdoor power circuit board

MXZ-8A140VA₁

MXZ-8A140VA₂

MXZ-8A140VA₃

Brief Check of POWER MODULE

※ Usually, they are in a state of being short-circuited if they are broken. Measure the resistance in the following points (connectors, etc.). If they are short-circuited, it means that they are broken.

1. Check of POWER MODULE

①. Check of DIODE circuit

[S]-[P1], [T]-[P1], [S]-[N1], [T]-[N1]

②. Check of IGBT circuit

[P2]-[U], [P2]-[V], [P2]-[W], [N2]-[U], [N2]-[V], [N2]-[W]

Note: The marks, [L], [N], [N1], [N2], [P1], [P2], [U], [V] and [W] shown in the diagram are not actually printed on the board.

CN2
Connect to the outdoor controller circuit board (CN2)

①-⑤: Transmitting signal to the outdoor controller circuit board (0~5V DC)

②-⑤: Zero cross signal (0~5V DC)

③-④: 18V DC

⑥-⑤: 16V DC

⑦-⑤: 16V DC

CNDC
310V DC (①+, ③-)
Connect to the outdoor controller circuit board

CN3
Thermistor (TH8)
<Heatsink>

CN5
Detection of primary current
Connect to the outdoor noise filter circuit board (CN5)

CN4
Connect to the outdoor controller circuit board (CN4)

TABP2/SC-P2
Connect to the ACTM(P)

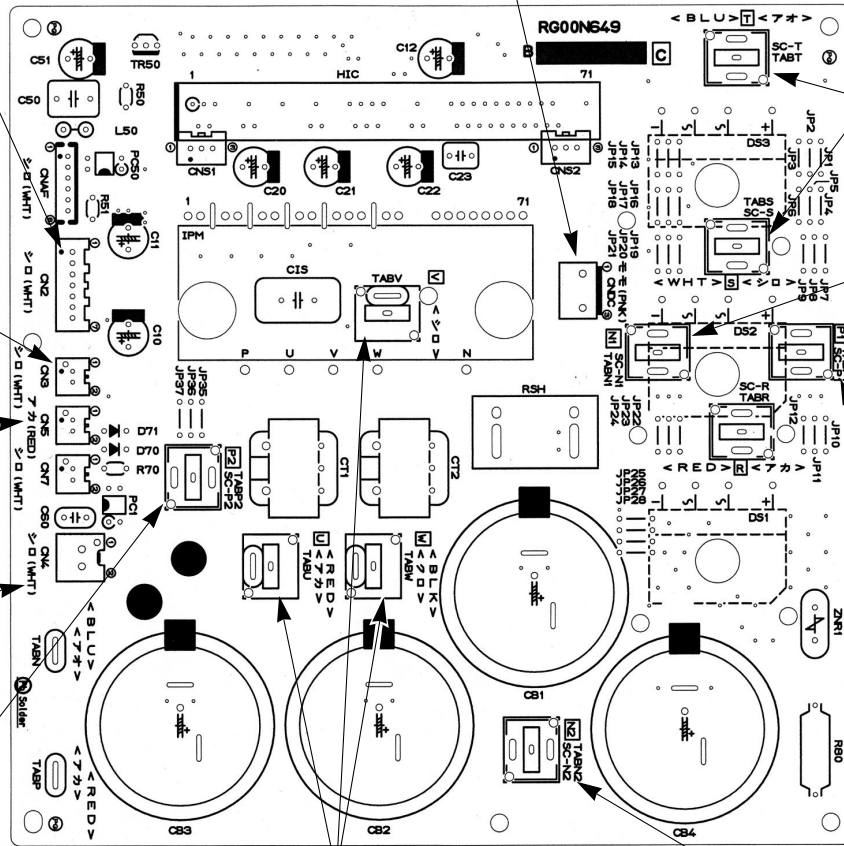
TABS/T
Connect to the outdoor noise filter circuit board
Voltage among phases: 220-240V AC

TABN1/SC-N1
Connect to the ACTM(-)

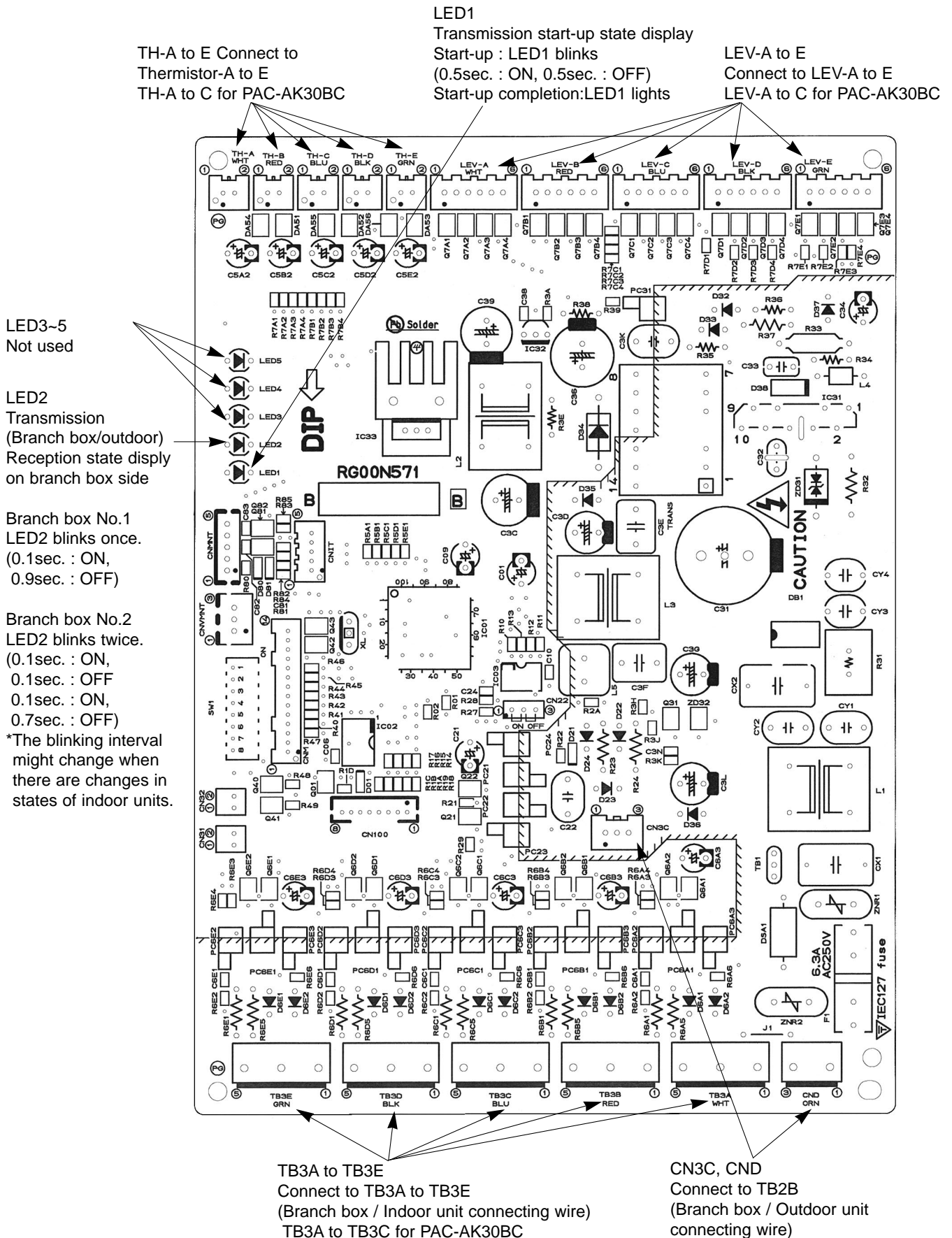
TABP1/SC-P1
Connect to 52C

TABU/V/W
Connect to the compressor (MC)
Voltage among phases: 10V~180V AC

TABN2/SC-N2
Connect to the ACTM(N2)



9-7-4. Branch box controller board
PAC-AK50BC
PAC-AK30BC

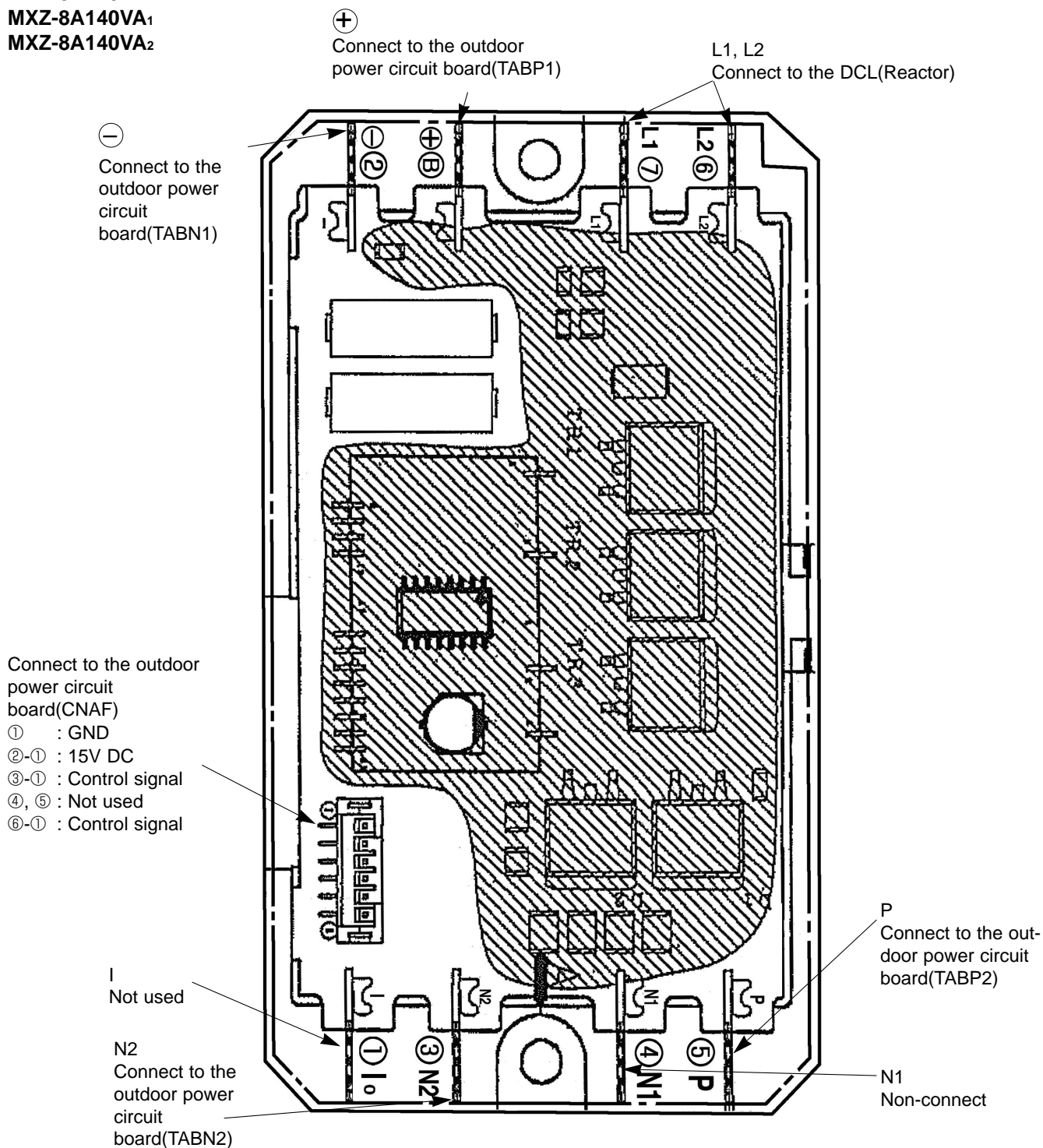


9-7-5. Active filter module

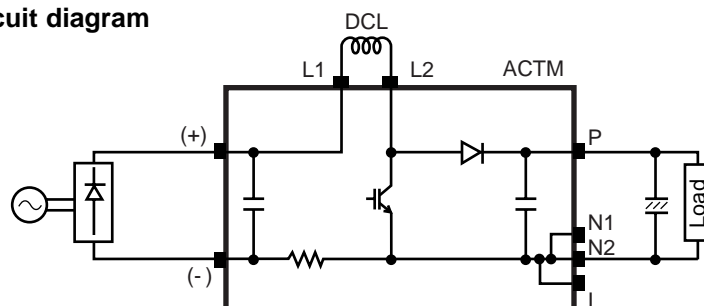
MXZ-8A140VA

MXZ-8A140VA₁

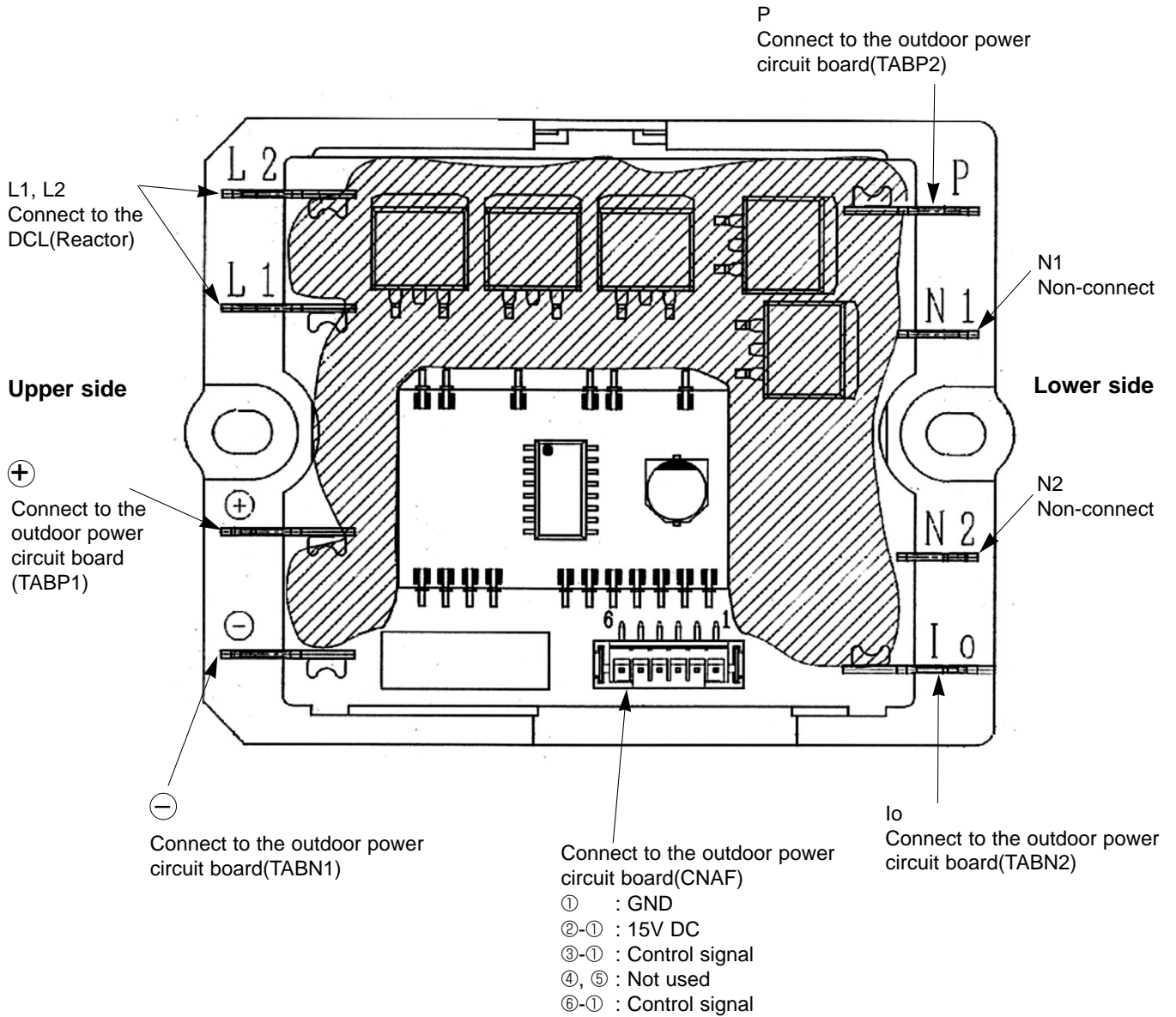
MXZ-8A140VA₂



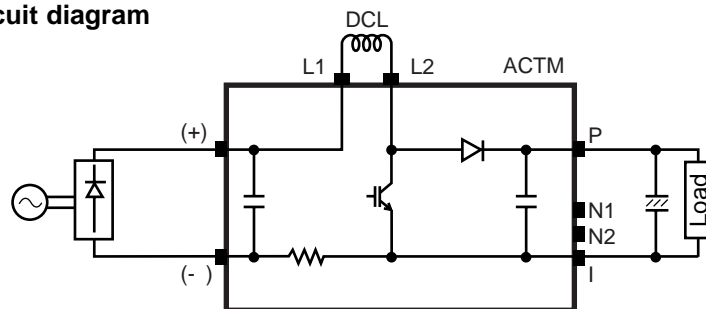
Connection and internal circuit diagram



**Active filter module
MXZ-8A140VA₃**



Connection and internal circuit diagram



9-8. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS

(1) Function of switches

Type of Switch	Switch	No.	Function	Action by the switch operation		Effective timing	
				ON	OFF		
Dip switch	SW1	1	Forced defrost	Start	Normal	When compressor is working in heating operation. ※	
		2	Abnormal history clear	Clear	Normal		off or operating
		3	No function	—	—	—	
		4	Self-diagnosis (Indoor unit selection)	<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6</div><div>Indoor No.1</div></div> <div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6</div><div>Indoor No.2</div></div> <div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6</div><div>Indoor No.3</div></div> <div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6</div><div>Indoor No.4</div></div> <div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6</div><div>Indoor No.5</div></div> <div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6</div><div>Indoor No.6</div></div> <div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6</div><div>Indoor No.7</div></div> <div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>1 2 3 4 5 6</div><div>Indoor No.8</div></div>	Indicating a particular self-diagnosis		
		5		<div><Example></div> <div><div>OC</div><div><div>BC#1 (5- branch type)</div><div>A</div><div>B</div><div>C</div><div>D</div><div>E</div><div><div>IC</div><div>RC</div><div>Indoor No.1</div></div><div><div>IC</div><div>RC</div><div>Indoor No.2</div></div><div><div>IC</div><div>RC</div><div>Indoor No.3</div></div></div><div><div>BC#2 (3- branch type)</div><div>A</div><div>B</div><div>C</div><div><div>IC</div><div>RC</div><div>Indoor No.4</div></div><div><div>IC</div><div>RC</div><div>Indoor No.5</div></div></div></div> <div>BC#1 : branch box controller unit Number 1 1 blinking LED2 (branch box controller board)</div> <div>BC#2 : branch box controller unit Number 2 2 blinking LED2 (branch box controller board)</div>			
		6					
		SW4	1	Test run	Operating	OFF	Under suspension
			2	Test run mode setting	Heating	Cooling	

Forced defrost should be done as follows.

① Change the DIP SW1-1 on the outdoor controller board from OFF to ON.

② Forced defrost will start by the above operation ① if these conditions written below are satisfied.

- Heat mode setting
- 10 minutes have passed since compressor started operating or previous forced defrost finished.
- Pipe temperature is less than or equal to 8°C.

③ Forced defrost will finish if certain conditions are satisfied.

* Forced defrost can be done if above conditions are satisfied when DIP SW1-1 is changed from OFF to ON.

After DIP SW1-1 is changed from OFF to ON, there is no problem if DIP SW1-1 is left ON or changed to OFF again. This depends on the service conditions.

MXZ-8A140VA MXZ-8A140VA₁ MXZ-8A140VA₂

Type of Switch	Switch	No.	Function	Action by the switch operation		Effective timing
				ON	OFF	
Dip switch	SW5	1	No function	—	—	—
		2	Switching the target sub-cool (Heating mode)	Target sub-cool down	Normal	Always
		3	No function	—	—	—
		4	No function	—	—	—
	SW7	1	Demand switching function	Capability cut 50%	Normal	Always
		2	No function	—	—	—
		3	Max. Frequency down	Active	Normal	Always
		4	No function	—	—	—
		5	No function	—	—	—
		6	No function	—	—	—
	SW8	1	No function	—	—	—
		2	No function	—	—	—
		3	No function	—	—	—
	SW6	1	Model selection	<div> <div>SW6</div> <div>ON</div> </div>		
		2				
		3				
		4				
		5				
		6				
	SW9	1	LEV opening setting function for stopping unit during heating operation	Changed	Normal	Always
		2	Switching function of defrosting prohibited time	60 minutes	30 minutes (Normal)	Always
	SW10	1	Switching the Input Current Limit Level	3 A down	Normal	Before turning the power on
		2	During the FAN or COOL mode, and thermo - OFF in heating operation, set the opening of liner expansion valve on branch box	Active	Inactive	While unit stopping

MXZ-8A140VA₃

Type of Switch	Switch	No.	Function	Action by the switch operation		Effective timing																									
				ON	OFF																										
Dip switch	SW5	1	No function	—	—	—																									
		2	Switching the target sub-cool (Heating mode)	Target sub-cool down	Normal	Always																									
		3, 4	No function	—	—	—																									
		5, 6	No function	—	—	—																									
	SW7	1	Demand switching function	Capability cut 50%	Normal	Always																									
		2	No function	—	—	—																									
		3	Max. Frequency down	Active	Normal	Always																									
		4	No function	—	—	—																									
		5	No function	—	—	—																									
		6	No function	—	—	—																									
	SW8	1	No function	—	—	—																									
		2	No function	—	—	—																									
		3	No function	—	—	—																									
	SW6	1	Model selection	<div>SW6</div> <div><div>ON</div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table><div>1 2 3 4 5 6 7 8</div></div>																											
		2																													
		3																													
		4																													
		5																													
	6																														
	7																														
	8																														
	SW9	1	LEV opening setting function for stopping unit during heating operation	Changed	Normal	Always																									
2		Switching function of defrosting prohibited time	60 minutes	30 minutes (Normal)	Always																										
3		Switching the Input Current Limit Level	3 A down	Normal	Before turning the power on																										
4		During the FAN or COOL mode, and thermo - OFF in heating operation, set the opening of liner expansion valve on branch box	Active	Inactive	While unit stopping																										

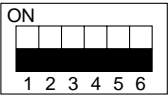
(2) Function of connector

Types	Connector	Function	Action by Pin short operation		Effective timing
			Pin 1-2 Short	Pin 2-3 Short	
Connector	CN31	LEV opening function (at start-up)	Open a little bit	Normal	When power supply ON

<Outdoor unit operation monitor function>

Digital indicator LED3 displays 2 digit number or code to inform operation condition and the meaning of error code by controlling DIP SW2 on outdoor controller.

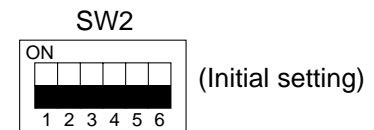
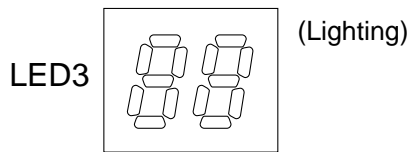
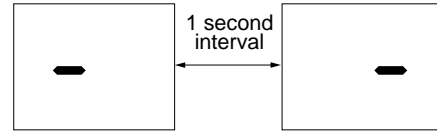
Operation indicator SW2 : Indicator change of self diagnosis

SW2 setting	Display detail	Explanation for display	Unit
			

<Digital indicator LED3 working details>

(Be sure that 1 to 6 in the SW2 are set to OFF.)

- (1) Display when the power supply is ON.
When the power supply is ON, blinking displays by turns.
Wait for 4 minutes at the longest.
- (2) When the display lights (Normal operation)
 - ① Operation mode display



The tens digit : Operation mode

Display	Operation Model
O	OFF / FAN
C	COOLING / DRY
H	HEATING
d	DEFROSTING

The ones digit : Relay output

Display	Warming-up Compressor	Compressor	4-way valve	Solenoid valve (SV1, 2)
0	—	—	—	—
1	—	—	—	ON
2	—	—	ON	—
3	—	—	ON	ON
4	—	ON	—	—
5	—	ON	—	ON
6	—	ON	ON	—
7	—	ON	ON	ON
8	ON	—	—	—
A	ON	—	ON	—

- ② Display during error postponement
Postponement code is displayed when compressor stops due to the work of protection device.
Postponement code is displayed while error is being postponed.

- (3) When the display blinks
Inspection code is displayed when compressor stops due to the work of protection devices.

Display	Inspection unit
0	Outdoor unit, Branch box unit
1	Indoor unit

Display	Contents to be inspected (During operation)
U2	Discharge temperature fault
U7	Low-discharge superheating fault, Erroneous connection of refrigerant pipes or the connecting wires
U1	High pressure fault (63H operates)
UL	Low pressure fault (63L operates)
U6	Abnormality of power modules
UF	Compressor overcurrent shutoff (Start up locked)
UH	Current sensor fault (P. B.)
UP	Compressor overcurrent shutoff fault
U3	Discharge pipe/compressor thermistor (TH4) open or short-circuit
U4	Outdoor unit thermistors (TH3, TH6, TH7, and H8), 63HS, and branch box thermistors open or short-circuit
U5	HEATSINK temperature fault
U8	Abnormality in outdoor fan motor
U9	Voltage fault, current sensor fault (N. F.)
PA	Forced compressor stop (Overlap malfunction of drain pump in indoor unit and linear expansion valve in branch box.)

Display	Contents to be inspected (When power is turned on)
F3	63L connector(red) is open.
F5	63H connector(yellow) is open.
F9	2 connectors (63H/63L) are open.
E8	Branch box/outdoor communication error (Signal receiving error) (Outdoor unit) Indoor/branch box communication error (Signal receiving error) (Branch box)
E9	Branch box/outdoor communication error (Transmitting error) (Outdoor unit) Indoor/branch box communication error (Transmitting error) (Branch box)
EA	• Miswiring of indoor - branch box/branch box - outdoor unit connecting wire • Too many indoor units/branch box are in the system.
Eb	Miswiring of indoor - branch box/branch box - outdoor unit connecting wire(converse wiring or disconnection)
Ec	Startup time over
E0~E7	Communication error except for outdoor unit



SW2 setting	Display detail	Explanation for display	Unit
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Pipe temperature / Liquid (TH3) – 40~90	– 40~90 (When the coil thermistor detects 0℃ or below, “–” and temperature are displayed by turns.) (Example) When –10℃; 0.5 secs. 0.5secs. 2 secs. –□ → 10 → □□ ↑	℃
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Discharge temperature (TH4) 3~217	3~217 (When the discharge thermistor detects 100℃ or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105℃; 0.5 secs. 0.5secs. 2 secs. □1 → 05 → □□ ↑	℃
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Output step of outdoor FAN 0~10	0~10	Step
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	The number of ON / OFF times of compressor 0~9999	0~9999 (When the number of times is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 42500 times (425 ×100 times); 0.5 secs. 0.5secs. 2 secs. □4 → 25 → □□ ↑	100 times
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Compressor integrating operation times 0~9999	0~9999 (When it is 100 hours or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 2450 hours (245 ×10 hours); 0.5 secs. 0.5secs. 2 secs. □2 → 45 → □□ ↑	10 hours
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Compressor operating current 0~50	0~50 *Omit the figures after the decimal fractions.	A
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Compressor operating frequency 0~225	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125Hz; 0.5 secs. 0.5secs. 2 secs. □1 → 25 → □□ ↑	Hz
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	LEV opening pulse 0~500	0~500 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150 pulse; 0.5 secs. 0.5secs. 2 secs. □1 → 50 → □□ ↑	Pulse
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Error postponement code history (1) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement “00” is displayed in case of no postponement.	Code display
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Operation mode on error occurring	Operation mode of when operation stops due to error is displayed by setting SW2 like below. (SW2) <div><div>ON</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div></div>	Code display

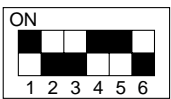
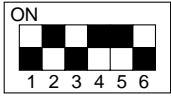
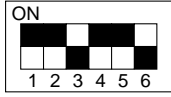
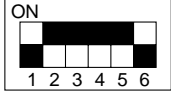
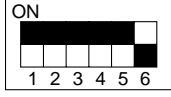
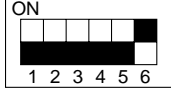
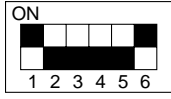
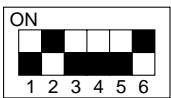
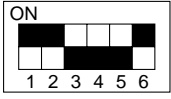
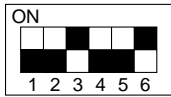


SW2 setting	Display detail	Explanation for display	Unit
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Pipe temperature / Liquid (TH3) on error occurring – 40~90	– 40~90 (When the coil thermistor detects 0°C or below, “–” and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. –□ → 15 → □□	°C
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Compressor temperature (TH4) or discharge temperature (TH4) on error occurring 3~217	3~217 (When the temperature is 100°C or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. □1 → 30 → □□	°C
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Compressor operating current on error occurring 0~50	0~50	A
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Error code history (1) (latest) Alternate display of abnormal unit number and code	When no error history, “ 0 ” and “–” are displayed by turns.	Code display
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Error code history (2) Alternate display of error unit number and code	When no error history, “ 0 ” and “–” are displayed by turns.	Code display
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Thermostat ON time 0~999	0~999 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 245 minutes; 0.5 secs. 0.5secs. 2 secs. □2 → 45 → □□	Minute
	Test run elapsed time 0~120	0~120 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105 minutes; 0.5 secs. 0.5secs. 2 secs. □1 → 05 → □□	Minute
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Capacity code of indoor unit (Qj)	The capacity code of indoor unit is displayed.	Code display

	SW1		
	4	5	6
Indoor unit 1	0	0	0
Indoor unit 2	1	0	0
Indoor unit 3	0	1	0
Indoor unit 4	1	1	0
Indoor unit 5	0	0	1
Indoor unit 6	1	0	1
Indoor unit 7	0	1	1
Indoor unit 8	1	1	1



SW2 setting	Display detail	Explanation for display	Unit																																																										
<div>ON</div> <div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table></div>													1	2	3	4	5	6	Capacity setting display	Displayed as an outdoor capacity code. <table><tr><th>Capacity</th><th>Code</th></tr><tr><td>MXZ-8A140VA</td><td>25</td></tr></table>	Capacity	Code	MXZ-8A140VA	25	Code display																																				
1	2	3	4	5	6																																																								
Capacity	Code																																																												
MXZ-8A140VA	25																																																												
<div>ON</div> <div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table></div>													1	2	3	4	5	6	Outdoor unit setting information	<div>• The tens digit (Total display for applied setting)</div> <table><tr><th>Setting details</th><th>Display details</th></tr><tr><td>H·P / Cooling only</td><td>0 : H·P 1 : Cooling only</td></tr><tr><td>Single phase / 3 phase</td><td>0 : Single phase 2 : 3 phase</td></tr></table> <div>• The ones digit</div> <table><tr><th>Setting details</th><th>Display details</th></tr><tr><td>Defrosting switch</td><td>0 : Normal 1 : For high humidity</td></tr></table> <div>(Example) MXZ-8A140VA, “00” is displayed.</div>	Setting details	Display details	H·P / Cooling only	0 : H·P 1 : Cooling only	Single phase / 3 phase	0 : Single phase 2 : 3 phase	Setting details	Display details	Defrosting switch	0 : Normal 1 : For high humidity	Code display																														
1	2	3	4	5	6																																																								
Setting details	Display details																																																												
H·P / Cooling only	0 : H·P 1 : Cooling only																																																												
Single phase / 3 phase	0 : Single phase 2 : 3 phase																																																												
Setting details	Display details																																																												
Defrosting switch	0 : Normal 1 : For high humidity																																																												
<div>ON</div> <div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table></div>													1	2	3	4	5	6	Indoor pipe temperature / Liquid – 39~88 <table><tr><td></td><td></td><td></td><td>SW1</td></tr><tr><td></td><td></td><td></td><td>4 5 6</td></tr><tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr></table>				SW1				4 5 6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	– 39~88 (When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)	℃
1	2	3	4	5	6																																																								
			SW1																																																										
			4 5 6																																																										
Indoor unit 1	0	0	0																																																										
Indoor unit 2	1	0	0																																																										
Indoor unit 3	0	1	0																																																										
Indoor unit 4	1	1	0																																																										
Indoor unit 5	0	0	1																																																										
Indoor unit 6	1	0	1																																																										
Indoor unit 7	0	1	1																																																										
Indoor unit 8	1	1	1																																																										
<div>ON</div> <div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table></div>													1	2	3	4	5	6	Indoor pipe temperature / Cond. / Eva. Indoor – 39~88 <table><tr><td></td><td></td><td></td><td>SW1</td></tr><tr><td></td><td></td><td></td><td>4 5 6</td></tr><tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr></table>				SW1				4 5 6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	– 39~88 (When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)	℃
1	2	3	4	5	6																																																								
			SW1																																																										
			4 5 6																																																										
Indoor unit 1	0	0	0																																																										
Indoor unit 2	1	0	0																																																										
Indoor unit 3	0	1	0																																																										
Indoor unit 4	1	1	0																																																										
Indoor unit 5	0	0	1																																																										
Indoor unit 6	1	0	1																																																										
Indoor unit 7	0	1	1																																																										
Indoor unit 8	1	1	1																																																										
<div>ON</div> <div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table></div>													1	2	3	4	5	6	Branch box pipe temperature / gas – 39~88 <table><tr><td></td><td></td><td></td><td>SW1</td></tr><tr><td></td><td></td><td></td><td>4 5 6</td></tr><tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr></table>				SW1				4 5 6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	– 39~88 (When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)	℃
1	2	3	4	5	6																																																								
			SW1																																																										
			4 5 6																																																										
Indoor unit 1	0	0	0																																																										
Indoor unit 2	1	0	0																																																										
Indoor unit 3	0	1	0																																																										
Indoor unit 4	1	1	0																																																										
Indoor unit 5	0	0	1																																																										
Indoor unit 6	1	0	1																																																										
Indoor unit 7	0	1	1																																																										
Indoor unit 8	1	1	1																																																										
<div>ON</div> <div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table></div>													1	2	3	4	5	6	Targeted evaporating temperature : ETm (Cooling) Targeted high pressure : Pdm (Heating) – 39~88	– 39~88 (When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)	℃ kgf/cm ²																																								
1	2	3	4	5	6																																																								
<div>ON</div> <div><table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table></div>													1	2	3	4	5	6	Indoor room temperature 8~39 <table><tr><td></td><td></td><td></td><td>SW1</td></tr><tr><td></td><td></td><td></td><td>4 5 6</td></tr><tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr></table>				SW1				4 5 6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	8~39	℃
1	2	3	4	5	6																																																								
			SW1																																																										
			4 5 6																																																										
Indoor unit 1	0	0	0																																																										
Indoor unit 2	1	0	0																																																										
Indoor unit 3	0	1	0																																																										
Indoor unit 4	1	1	0																																																										
Indoor unit 5	0	0	1																																																										
Indoor unit 6	1	0	1																																																										
Indoor unit 7	0	1	1																																																										
Indoor unit 8	1	1	1																																																										

SW2 setting	Display detail	Explanation for display	Unit																																								
	Indoor setting temperature 17~30 <table border="1" data-bbox="584 304 782 533"> <thead> <tr> <th></th><th colspan="3">SW1</th></tr> <tr> <th></th><th>4</th><th>5</th><th>6</th></tr> </thead> <tbody> <tr> <td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr> <tr> <td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr> <tr> <td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr> <tr> <td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr> <tr> <td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr> <tr> <td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr> <tr> <td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr> <tr> <td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr> </tbody> </table>		SW1				4	5	6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	17~30	℃
	SW1																																										
	4	5	6																																								
Indoor unit 1	0	0	0																																								
Indoor unit 2	1	0	0																																								
Indoor unit 3	0	1	0																																								
Indoor unit 4	1	1	0																																								
Indoor unit 5	0	0	1																																								
Indoor unit 6	1	0	1																																								
Indoor unit 7	0	1	1																																								
Indoor unit 8	1	1	1																																								
	Outdoor pipe temperature / Cond./ Eva. (TH6) – 39~88	– 39~88 (When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)	℃																																								
	Outdoor temperature (TH7) – 39~88	– 39~88 (When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)	℃																																								
	Outdoor heatsink temperature (TH8) – 40~200	– 40~200 (When the temperature is 0℃ or less, “–” and temperature are displayed by turns.) (When the thermistor detects 100℃ or more, hundreds digit, tens digit and ones digit are displayed by turns.)	℃																																								
	Discharge superheat. SHd 0~255	0~255 (When the temperature is 100℃ or more, hundreds digit, tens digit and ones digit are displayed by turns.)	℃																																								
	Sub-cool. SC (cooling mode) 0~130	0~130 (When the temperature is 100℃ or more, hundreds digit, tens digit and ones digit are displayed by turns.)	℃																																								
	Input current of outdoor unit	0~500 (When it is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.)	0.1 A																																								
	High pressure 63HS	0~500 (When it is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.) (0~4.9MPa)	0.1 kgf/cm ²																																								
	Targeted operation frequency 0~255	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.)	Hz																																								
	DC bus voltage 180~370	180~370 (When it is 100V or more, hundreds digit, tens digit and ones digit are displayed by turns.)	V																																								



SW2 setting	Display detail	Explanation for display	Unit																																								
	Target Sub-cool (Cooling mode) : SCm	0~255	℃																																								
	Error postponement code history (2) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement “00” is displayed in case of no postponement.	Code display																																								
	Error postponement code history (3) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement “00” is displayed in case of no postponement.	Code display																																								
	Error code history (3) (Oldest) Alternate display of abnormal unit number and code	When no error history, “0” and “-” are displayed by turns.	Code display																																								
	Error thermistor display [When there is no error thermistor, “-” is displayed.]	3: Outdoor pipe temperature /Liquid (TH3) 7: Outdoor outside temperature (TH7) 8: Outdoor radiator panel (TH8) 23: Branch box pipe temperature / Gas (TH-A~E) 63: High pressure sensor (63HS)	Code display																																								
	Operation frequency on error occurring 0~255	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125Hz; 0.5 secs. 0.5secs. 2 secs. <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px 5px;">1</div> <div style="margin: 0 10px;">→</div> <div style="border: 1px solid black; padding: 2px 5px;">25</div> <div style="margin: 0 10px;">→</div> <div style="border: 1px solid black; padding: 2px 5px;"> </div> </div>	Hz																																								
	Fan step on error occurring 0~10	0~10	Step																																								
	LEV opening pulse on error occurring 0~500 <table border="1" style="font-size: small;"> <thead> <tr> <th></th><th colspan="3">SW1</th></tr> <tr> <th></th><th>4</th><th>5</th><th>6</th></tr> </thead> <tbody> <tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr> <tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr> <tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr> <tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr> </tbody> </table>		SW1				4	5	6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	0~500 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130 pulse; 0.5 secs. 0.5secs. 2 secs. <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px 5px;">1</div> <div style="margin: 0 10px;">→</div> <div style="border: 1px solid black; padding: 2px 5px;">30</div> <div style="margin: 0 10px;">→</div> <div style="border: 1px solid black; padding: 2px 5px;"> </div> </div>	Pulse
	SW1																																										
	4	5	6																																								
Indoor unit 1	0	0	0																																								
Indoor unit 2	1	0	0																																								
Indoor unit 3	0	1	0																																								
Indoor unit 4	1	1	0																																								
Indoor unit 5	0	0	1																																								
Indoor unit 6	1	0	1																																								
Indoor unit 7	0	1	1																																								
Indoor unit 8	1	1	1																																								
	Indoor room temperature on error occurring 8~39 <table border="1" style="font-size: small;"> <thead> <tr> <th></th><th colspan="3">SW1</th></tr> <tr> <th></th><th>4</th><th>5</th><th>6</th></tr> </thead> <tbody> <tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr> <tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr> <tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr> <tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr> </tbody> </table>		SW1				4	5	6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	8~39	℃
	SW1																																										
	4	5	6																																								
Indoor unit 1	0	0	0																																								
Indoor unit 2	1	0	0																																								
Indoor unit 3	0	1	0																																								
Indoor unit 4	1	1	0																																								
Indoor unit 5	0	0	1																																								
Indoor unit 6	1	0	1																																								
Indoor unit 7	0	1	1																																								
Indoor unit 8	1	1	1																																								

SW2 setting	Display detail	Explanation for display	Unit																																						
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Indoor pipe temperature / Liquid on error occurring – 39~88 <table><tr><th></th><th>SW1</th></tr><tr><th></th><th>4</th><th>5</th><th>6</th></tr><tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr></table>		SW1		4	5	6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. –□ → 15 → □□	°C
	SW1																																								
	4	5	6																																						
Indoor unit 1	0	0	0																																						
Indoor unit 2	1	0	0																																						
Indoor unit 3	0	1	0																																						
Indoor unit 4	1	1	0																																						
Indoor unit 5	0	0	1																																						
Indoor unit 6	1	0	1																																						
Indoor unit 7	0	1	1																																						
Indoor unit 8	1	1	1																																						
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Indoor pipe temperature / Cond./ Eva. on error occurring – 39~88 <table><tr><th></th><th>SW1</th></tr><tr><th></th><th>4</th><th>5</th><th>6</th></tr><tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr></table>		SW1		4	5	6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. –□ → 15 → □□	°C
	SW1																																								
	4	5	6																																						
Indoor unit 1	0	0	0																																						
Indoor unit 2	1	0	0																																						
Indoor unit 3	0	1	0																																						
Indoor unit 4	1	1	0																																						
Indoor unit 5	0	0	1																																						
Indoor unit 6	1	0	1																																						
Indoor unit 7	0	1	1																																						
Indoor unit 8	1	1	1																																						
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Outdoor pipe temperature / Cond./ Eva. (TH6) on error occurring – 39~88	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. –□ → 15 → □□	°C																																						
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Outdoor outside temperature (TH7) on error occurring – 39~88	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. –□ → 15 → □□	°C																																						
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Outdoor heatsink temperature (TH8) on error occurring – 40~200	– 40~200 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.) (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°C																																						
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Discharge superheat on error occurring SHd 0~255	0~255 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150°C; 0.5 secs. 0.5secs. 2 secs. □1 → 50 → □□	°C																																						
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Sub-cool on error occurring. SC 0~130	0~130 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 115°C; 0.5 secs. 0.5secs. 2 secs. □1 → 15 → □□	°C																																						

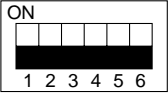
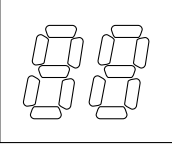
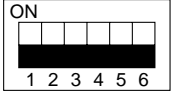
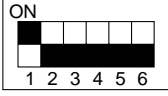
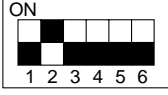
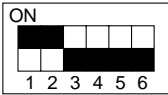
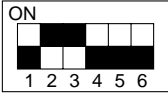
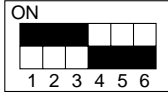
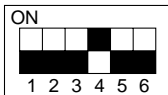


SW2 setting	Display detail	Explanation for display	Unit																																																					
<div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Thermostat-on time until error stops 0~999	0~999 (When it is 100 minutes or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 415 minutes; 0.5 secs. 0.5secs. 2 secs. <div><div>4</div> → 15 → <div></div><div></div><div>↑</div></div>	Minute																																																					
<div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Target rotation of outdoor fan motor	0~999	rpm																																																					
<div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Sub-cool (Heating mode) <table><tr><td></td><td colspan="3">SW1</td></tr><tr><td></td><td>4</td><td>5</td><td>6</td></tr><tr><td>Indoor unit 1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 2</td><td>1</td><td>0</td><td>0</td></tr><tr><td>Indoor unit 3</td><td>0</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 4</td><td>1</td><td>1</td><td>0</td></tr><tr><td>Indoor unit 5</td><td>0</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 6</td><td>1</td><td>0</td><td>1</td></tr><tr><td>Indoor unit 7</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Indoor unit 8</td><td>1</td><td>1</td><td>1</td></tr></table>		SW1				4	5	6	Indoor unit 1	0	0	0	Indoor unit 2	1	0	0	Indoor unit 3	0	1	0	Indoor unit 4	1	1	0	Indoor unit 5	0	0	1	Indoor unit 6	1	0	1	Indoor unit 7	0	1	1	Indoor unit 8	1	1	1	0~130	℃													
	SW1																																																							
	4	5	6																																																					
Indoor unit 1	0	0	0																																																					
Indoor unit 2	1	0	0																																																					
Indoor unit 3	0	1	0																																																					
Indoor unit 4	1	1	0																																																					
Indoor unit 5	0	0	1																																																					
Indoor unit 6	1	0	1																																																					
Indoor unit 7	0	1	1																																																					
Indoor unit 8	1	1	1																																																					
<div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Code of the difference between room temperature and set temperature ("ΔTj": 0~99) ■Tens digit of code: current ΔTj ■Units digit of code: ΔTj a minute ago	Code of the difference between room temperature and set temperature ("Δtj") <table><tr><th rowspan="2">Δtj</th><th>Cooling</th><th>Heating</th></tr><tr><th>Δtj = room temp. – Set temp.</th><th>Δtj = Set temp. – room temp.</th></tr><tr><td>0</td><td>Δtj ≤ –0.5</td><td>Δtj ≤ –0.5</td></tr><tr><td>1</td><td>–1.0 < Δtj ≤ –0.5</td><td>–0.5 < Δtj ≤ 0.0</td></tr><tr><td>2</td><td>–0.5 < Δtj ≤ –0.5</td><td>0.0 < Δtj ≤ 0.5</td></tr><tr><td>3</td><td>0.0 < Δtj ≤ 0.0</td><td>0.5 < Δtj ≤ 1.0</td></tr><tr><td>4</td><td>0.5 < Δtj ≤ 0.5</td><td>1.0 < Δtj ≤ 1.5</td></tr><tr><td>5</td><td>1.0 < Δtj ≤ 1.0</td><td>1.5 < Δtj ≤ 2.0</td></tr><tr><td>6</td><td>1.5 < Δtj ≤ 0.5</td><td>2.0 < Δtj ≤ 2.5</td></tr><tr><td>7</td><td>2.0 < Δtj ≤ 2.0</td><td>2.5 < Δtj ≤ 3.0</td></tr><tr><td>8</td><td>2.5 < Δtj ≤ 2.5</td><td>3.0 < Δtj ≤ 3.5</td></tr><tr><td>9</td><td>3.0 < Δtj ≤ 3.0</td><td>3.5 < Δtj</td></tr></table> <table><tr><th>SW setting (1-4, 5, 6)</th><th>Target unit</th></tr><tr><td>000</td><td>Indoor unit 1</td></tr><tr><td>100</td><td>Indoor unit 2</td></tr><tr><td>010</td><td>Indoor unit 3</td></tr><tr><td>110</td><td>Indoor unit 4</td></tr><tr><td>001</td><td>Indoor unit 5</td></tr><tr><td>101</td><td>Indoor unit 6</td></tr><tr><td>011</td><td>Indoor unit 7</td></tr><tr><td>111</td><td>Indoor unit 8</td></tr></table>	Δtj	Cooling	Heating	Δtj = room temp. – Set temp.	Δtj = Set temp. – room temp.	0	Δtj ≤ –0.5	Δtj ≤ –0.5	1	–1.0 < Δtj ≤ –0.5	–0.5 < Δtj ≤ 0.0	2	–0.5 < Δtj ≤ –0.5	0.0 < Δtj ≤ 0.5	3	0.0 < Δtj ≤ 0.0	0.5 < Δtj ≤ 1.0	4	0.5 < Δtj ≤ 0.5	1.0 < Δtj ≤ 1.5	5	1.0 < Δtj ≤ 1.0	1.5 < Δtj ≤ 2.0	6	1.5 < Δtj ≤ 0.5	2.0 < Δtj ≤ 2.5	7	2.0 < Δtj ≤ 2.0	2.5 < Δtj ≤ 3.0	8	2.5 < Δtj ≤ 2.5	3.0 < Δtj ≤ 3.5	9	3.0 < Δtj ≤ 3.0	3.5 < Δtj	SW setting (1-4, 5, 6)	Target unit	000	Indoor unit 1	100	Indoor unit 2	010	Indoor unit 3	110	Indoor unit 4	001	Indoor unit 5	101	Indoor unit 6	011	Indoor unit 7	111	Indoor unit 8	Code display
Δtj	Cooling	Heating																																																						
	Δtj = room temp. – Set temp.	Δtj = Set temp. – room temp.																																																						
0	Δtj ≤ –0.5	Δtj ≤ –0.5																																																						
1	–1.0 < Δtj ≤ –0.5	–0.5 < Δtj ≤ 0.0																																																						
2	–0.5 < Δtj ≤ –0.5	0.0 < Δtj ≤ 0.5																																																						
3	0.0 < Δtj ≤ 0.0	0.5 < Δtj ≤ 1.0																																																						
4	0.5 < Δtj ≤ 0.5	1.0 < Δtj ≤ 1.5																																																						
5	1.0 < Δtj ≤ 1.0	1.5 < Δtj ≤ 2.0																																																						
6	1.5 < Δtj ≤ 0.5	2.0 < Δtj ≤ 2.5																																																						
7	2.0 < Δtj ≤ 2.0	2.5 < Δtj ≤ 3.0																																																						
8	2.5 < Δtj ≤ 2.5	3.0 < Δtj ≤ 3.5																																																						
9	3.0 < Δtj ≤ 3.0	3.5 < Δtj																																																						
SW setting (1-4, 5, 6)	Target unit																																																							
000	Indoor unit 1																																																							
100	Indoor unit 2																																																							
010	Indoor unit 3																																																							
110	Indoor unit 4																																																							
001	Indoor unit 5																																																							
101	Indoor unit 6																																																							
011	Indoor unit 7																																																							
111	Indoor unit 8																																																							
<div><div>ON</div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	U9 Error status during the Error postponement period	<table><tr><th>Description</th><th>Detection point</th><th>Display</th></tr><tr><td>Normal</td><td>—</td><td>00</td></tr><tr><td>Overvoltage error</td><td>Power circuit board</td><td>01</td></tr><tr><td>Undervoltage error</td><td>Controller circuit board</td><td>02</td></tr><tr><td>T phase interruption error</td><td>Controller circuit board</td><td>04</td></tr><tr><td>Abnormal power synchronous signal</td><td>Power circuit board</td><td>08</td></tr><tr><td>PFC error (Overvoltage / Undervoltage / Overcurrent)</td><td>Power circuit board</td><td>10</td></tr></table> <p>* Display examples for multiple errors: Overvoltage (01) + Undervoltage (02) = 03 Undervoltage (02) + Power-sync signal error (08) = 0A T phase interruption (04) + PFC error (10) = 14</p>	Description	Detection point	Display	Normal	—	00	Overvoltage error	Power circuit board	01	Undervoltage error	Controller circuit board	02	T phase interruption error	Controller circuit board	04	Abnormal power synchronous signal	Power circuit board	08	PFC error (Overvoltage / Undervoltage / Overcurrent)	Power circuit board	10	Code display																																
Description	Detection point	Display																																																						
Normal	—	00																																																						
Overvoltage error	Power circuit board	01																																																						
Undervoltage error	Controller circuit board	02																																																						
T phase interruption error	Controller circuit board	04																																																						
Abnormal power synchronous signal	Power circuit board	08																																																						
PFC error (Overvoltage / Undervoltage / Overcurrent)	Power circuit board	10																																																						


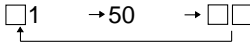

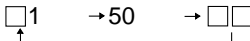
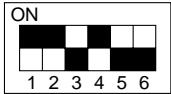
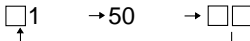
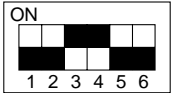
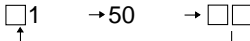
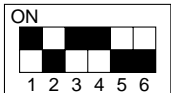
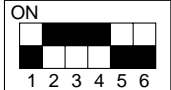
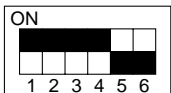
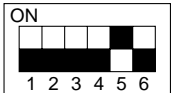
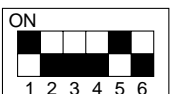

<Branch box unit operation monitor function>

[When option part 'A-Control Service Tool(PAC-SK52ST)' is connected to branch box controller board(CNM)]
 Digital indicator LED1 displays 2 digit number or code to inform operation condition and the meaning of error code by controlling DIP SW2 on 'A-Control Service Tool'.

Operation indicator SW2 : Indicator change of self diagnosis

SW2 setting	Display detail	Explanation for display	Unit
			
<Digital indicator LED1 working details> (Be sure that 1 to 6 in the SW2 are set to OFF.)			
(1) Display when the power supply is ON. When the power supply is ON, blinking displays by turns. Wait for 2 minutes at the longest.			
(2) When the display lights (Normal operation)			
①The number of connected indoor units to this branch box (0 - 5)			
LED1		(Lighting)	 (Initial setting)
	Pipe temperature / Liquid(TH3) - 40~90	- 40~90 (When the coil thermistor detects 0°C or below, "—" and temperature are displayed by turns.) (Example) When -10°C; 0.5 secs. 0.5secs. 2 secs. -□ → 10 → □□	°C
	Discharge temperature (TH4) 3~217	3~217 (When the discharge thermistor detects 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105°C; 0.5 secs. 0.5secs. 2 secs. □1 → 05 → □□	°C
	Output step of outdoor FAN 0~15	0~15	Step
	Unit number of this branch box 1~2	1 or 2 *Omit the figures after the decimal fractions.	code display
	Compressor operating frequency 0~225	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125Hz; 0.5 secs. 0.5secs. 2 secs. □1 → 25 → □□	.Hz
	LEV-A opening pulse 0~500	0~500 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150 pulse; 0.5 secs. 0.5secs. 2 secs. □1 → 50 → □□	Pulse

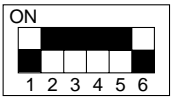
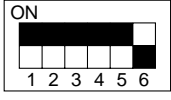
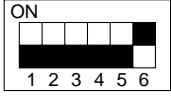
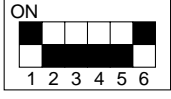
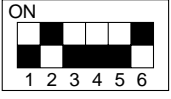
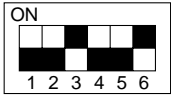
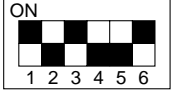
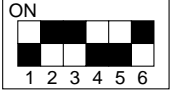
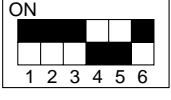
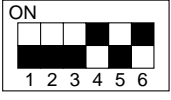
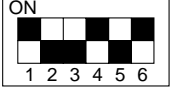


SW2 setting	Display detail	Explanation for display	Unit																										
	LEV-B opening pulse 0~500	0~500 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 150 pulse; 0.5 secs. 0.5secs. 2 secs. 	Pulse																										
	LEV-C opening pulse 0~500	0~500 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 150 pulse; 0.5 secs. 0.5secs. 2 secs. 	Pulse																										
	LEV-D opening pulse 0~500	0~500 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 150 pulse; 0.5 secs. 0.5secs. 2 secs. 	Pulse																										
	LEV-E opening pulse 0~500	0~500 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 150 pulse; 0.5 secs. 0.5secs. 2 secs. 	Pulse																										
	Capacity setting indoor-A 0~14	<table><tr><th>Code display (Not Qj)</th><th>Rated capacity</th></tr><tr><td>2</td><td>22</td></tr><tr><td>3</td><td>25</td></tr><tr><td>4</td><td>28</td></tr><tr><td>5</td><td>32</td></tr><tr><td>6</td><td>35</td></tr><tr><td>7</td><td>40</td></tr><tr><td>8</td><td>45</td></tr><tr><td>9</td><td>50</td></tr><tr><td>10</td><td>56</td></tr><tr><td>11</td><td>60</td></tr><tr><td>12</td><td>71</td></tr><tr><td>13</td><td>80</td></tr></table>	Code display (Not Qj)	Rated capacity	2	22	3	25	4	28	5	32	6	35	7	40	8	45	9	50	10	56	11	60	12	71	13	80	Code display
Code display (Not Qj)	Rated capacity																												
2	22																												
3	25																												
4	28																												
5	32																												
6	35																												
7	40																												
8	45																												
9	50																												
10	56																												
11	60																												
12	71																												
13	80																												
	Capacity setting indoor-B 0~14	Code display																											
	Capacity setting indoor-C 0~14	Code display																											
	Capacity setting indoor-D 0~14	Code display																											
	Capacity setting indoor-E 0~14	Code display																											
	Indoor pipe temperature / Liquid TH2 Indoor-A – 39~88	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.)	℃																										



SW2 setting	Display detail	Explanation for display	Unit
	Indoor pipe temperature / Liquid TH2 Indoor-B – 35~88	– 35~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.)	°C
	Indoor pipe temperature / Liquid TH2 Indoor-C – 39~88	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.)	°C
	Indoor pipe temperature / Liquid TH2 Indoor-D – 39~88	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.)	°C
	Indoor pipe temperature / Liquid TH2 Indoor-E – 39~88	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.)	°C
	LEV-1 opening pulse 0~500	0~500	Pulse
	LEV-2 opening pulse 0~500	0~500	Pulse
	LEV-3 opening pulse 0~500	0~500	Pulse
	LEV-4 opening pulse 0~500	0~500	Pulse
	LEV-5 opening pulse 0~500	0~500	Pulse
	Outdoor pipe temperature / Cond./Eva. (TH6) – 39~88	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.)	°C
	Outdoor outside temperature (TH7) – 39~88	– 39~88 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.)	°C



SW2 setting	Display detail	Explanation for display	Unit
	Outdoor heatsink temperature (TH8) – 40~200	– 40~200 (When the temperature is 0°C or less, “–” and temperature are displayed by turns.) (When the thermistor detects 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°C
	LEV-6 opening pulse 0~500	0~500	Pulse
	LEV-7 opening pulse 0~500	0~500	Pulse
	LEV-8 opening pulse 0~500	0~500	Pulse
	High pressure × 10 (63HS) 0~500	0~500 (When it is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.)	kgf/cm ²
	Input current 0~50	0~50	A
	Indoor pipe temperature / Cond. / Eva. TH5 Indoor-A	– 39~88	°C
	Indoor pipe temperature / Cond. / Eva. TH5 Indoor-B	– 39~88	°C
	Indoor pipe temperature / Cond. / Eva. TH5 Indoor-C	– 39~88	°C
	Indoor pipe temperature / Cond. / Eva. TH5 Indoor-D	– 39~88	°C
	Indoor pipe temperature / Cond. / Eva. TH5 Indoor-E	– 39~88	°C



SW2 setting	Display detail	Explanation for display	Unit
	Branch pipe temperature TH-A	– 39~88	℃
	Branch pipe temperature TH-B	– 39~88	℃
	Branch pipe temperature TH-C	– 39~88	℃
	Branch pipe temperature TH-D	– 39~88	℃
	Branch pipe temperature TH-E	– 39~88	℃
	TH1 Indoor-A 8~39	8~39	℃
	TH1 Indoor-B 8~39	8~39	℃
	TH1 Indoor-C 8~39	8~39	℃
	TH1 Indoor-D 8~39	8~39	℃
	TH1 Indoor-E 8~39	8~39	℃



SW2 setting	Display detail	Explanation for display	Unit
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Indoor - setting temperature 16~31 Indoor-A	16~31	℃
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Indoor - setting temperature 16~31 Indoor-B	16~31	℃
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Indoor - setting temperature 16~31 Indoor-C	16~31	℃
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Indoor - setting temperature 16~31 Indoor-D	16~31	℃
<div>ON</div> <div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>123456</div></div>	Indoor - setting temperature 16~31 Indoor-E	16~31	℃